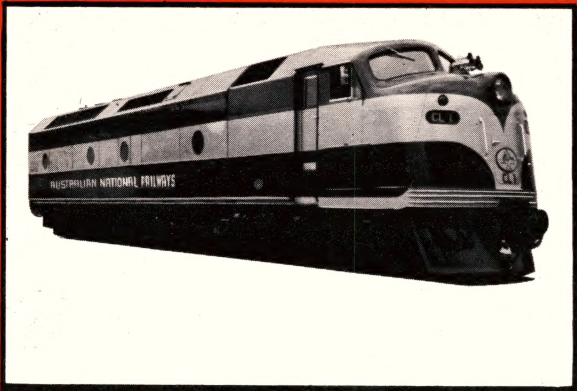
Railways of Australia

WESTRAIL
Centenary
Issue

NETWORK

Vol. 16 No. 5 June/July 1979 Price: 50 cents



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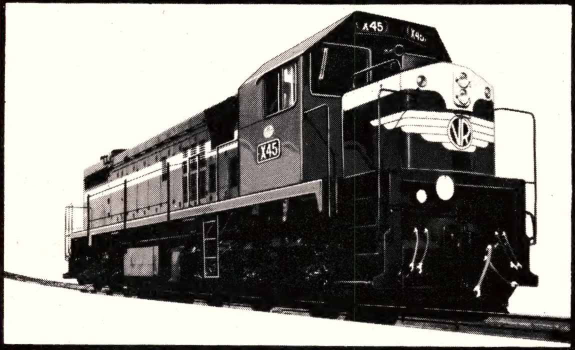

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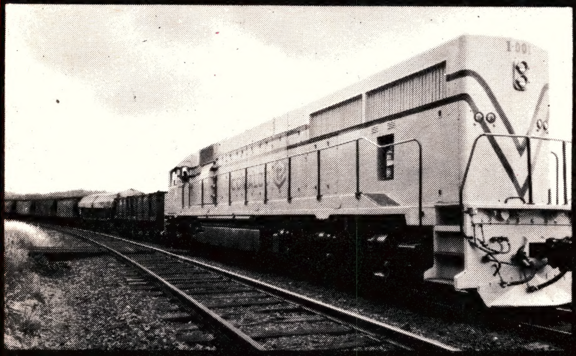

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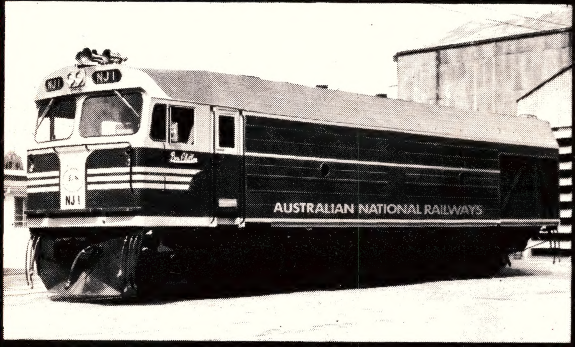

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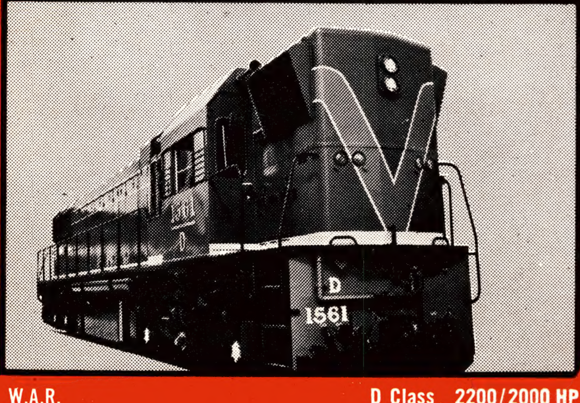

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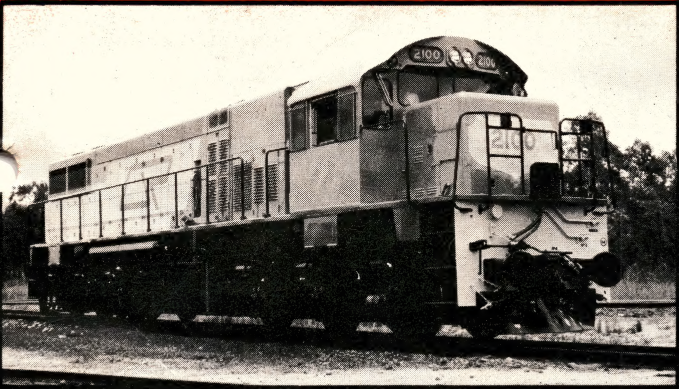
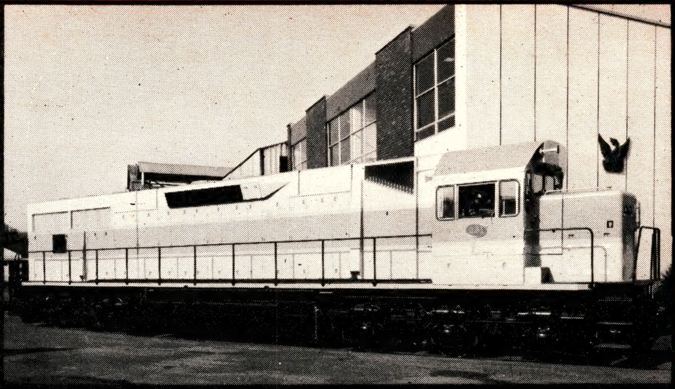


Q.R. Model GL26C 2200/2000 HP



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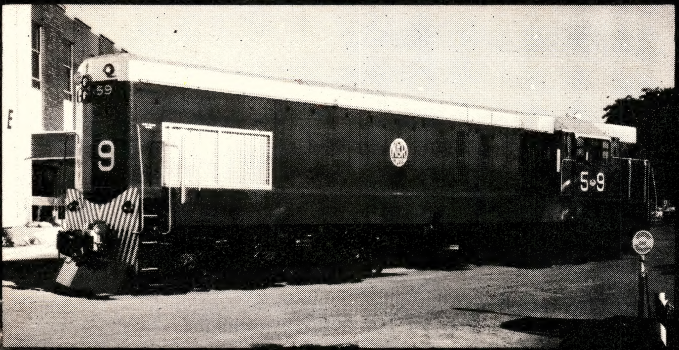

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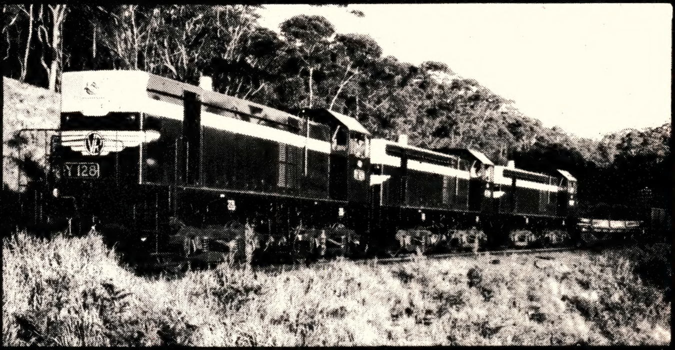

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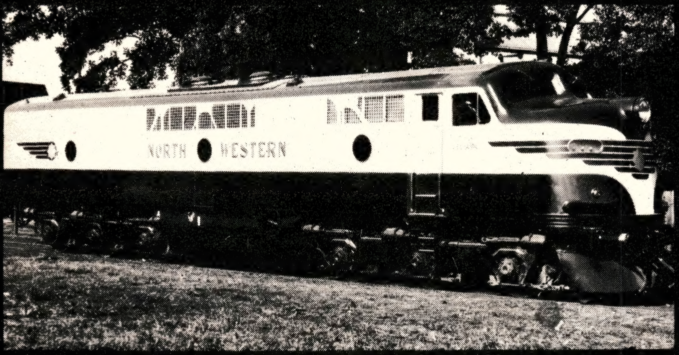

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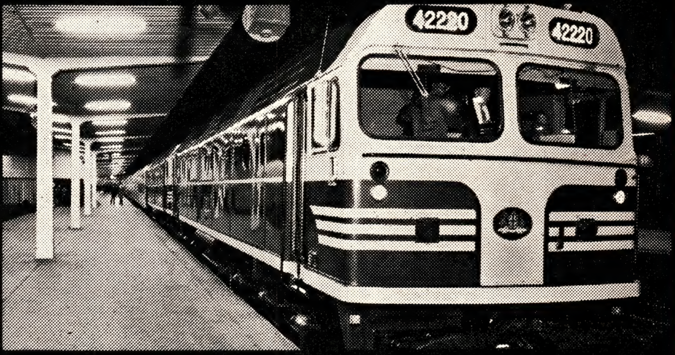

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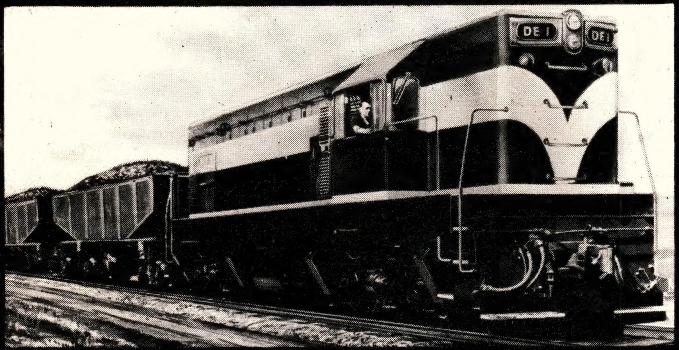

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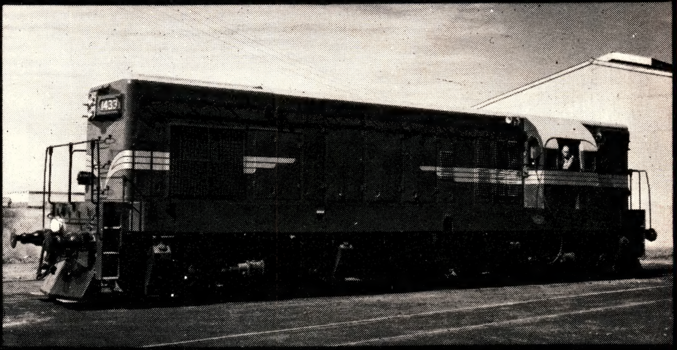

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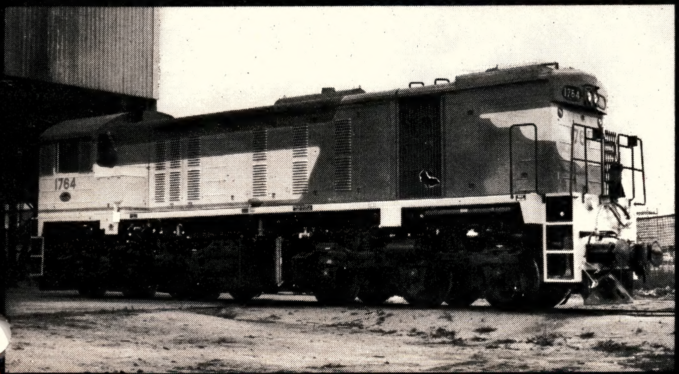

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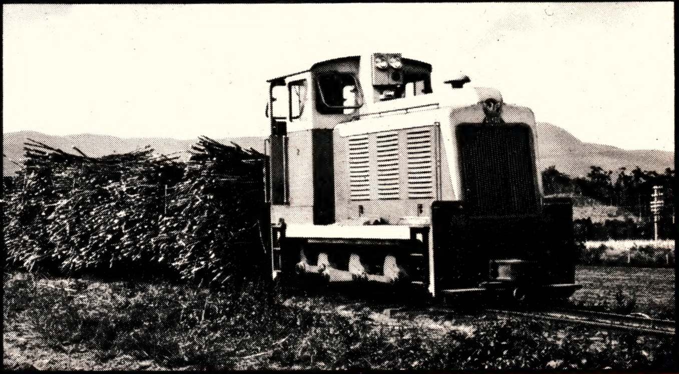

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Railways of Australia

NETWORK

Vol. 16 No. 5 June-July 1979

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- Queensland Railways
- Victorian Railways
- Western Australian Government Railways

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OUR COVER

Tracklaying on the 831 km standard-gauge Tarcoola-Alice Springs rail link is highly mechanised, including welding of rails into continuous lengths (inset). A ballast train (below) nears the railhead.

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Network Price Increase

As from the August 1979 issue, the cover price of *'Network'* will be 60c. The subscription rate (in Australia) remains at $8.50.

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The Port of Fremantle, journey's end for the yachts that will contest the Parmelia Race from Plymouth.

Railways of Australia
NETWORK

From the Executive Director's Desk

Railways Management — and the Crucial Challenge

Management Conferences are organized regularly by the Railways of Australia Committee in order to ensure review and assessment of both policies and programmes within Australia's railway systems. They reflect a continuing concern for shortcomings, a resolve to overcome them, and a determination to achieve and maintain the most effective level of service and operation.

The recent 1979 Conference reviewed railway policies and problems in their full context. The theme was "Transport Planning", not only within the railway systems themselves but by the railway systems within the overall national and community needs.

In this field railways face their biggest immediate challenge, and also their greatest opportunity. Current restrictions on road transport are being eased, and the road operators' challenge has not as yet been seriously affected by either a shortage of fuel or its rising costs.

However, it has already been established that for bulk consignments, long distance haulage and mass commuter traffic, railways are by far the most fuel-efficient carriers.

Tests organised in Europe have revealed that road transport demanded at least twice as much fuel to transport the same amount of freight or the same number of passengers. In Australia, where much longer distances are involved, and road transport is complicated by the problem of relieving drivers, the railway role is (or should be) even more clearly defined.

The swift growth of container traffic, the increasing use of flat-top wagons to carry loaded road transports across the continent and between Port Pirie and the West, the increasing use of motor-rail facilities on most long-distance main lines, and the establishment of country freight centres to ensure overnight deliveries of small consignments by rail and immediate local distribution by road, all reflect the widespread re-appraisal of the railways' role.

We have recently experienced a bumper wheat crop, greatly improved prices and markets for our wheat exports, and brightening prospects for wool, aluminium, copper, lead, zinc and nickel. The transportation needs of commerce and industry are growing. But there is less ground than ever before for complacency or relaxation of effort. We must offer not only facilities, but reliable, dependable use of those facilities.

Transport users will turn to rail, road, sea or air, according to their immediate need. Rail will be assessed, for some appreciable time at least, by its immediate performance. And to ensure that it is the best possible performance, both operators and administrators are under challenge.

For Australia's railways, as public utilities, constitute the largest enterprise in the southern hemisphere. They operate more than 45,000 km of routes, employ some 120,000 people, and operate more than 2,500 locomotives, over 6,000 passenger cars, and 100,000 freight wagons. They carry more than 400 million passengers and 115 million tonnes of freight each year, represent a total investment of over $3,000 million, and record an annual revenue in excess of $1,000 million. They have done more than anything else to foster the wealth and prosperity of Australia's rural communities, and to ensure the growth and well being of our ports and cities.

In 1979, as Westrail celebrates its centenary, re-laying and up-grading is proceeding at an unprecedented level. The problems exist, but the wherewithal to deal with them is being provided. The future developments of Australia's railways will far exceed their present operations.

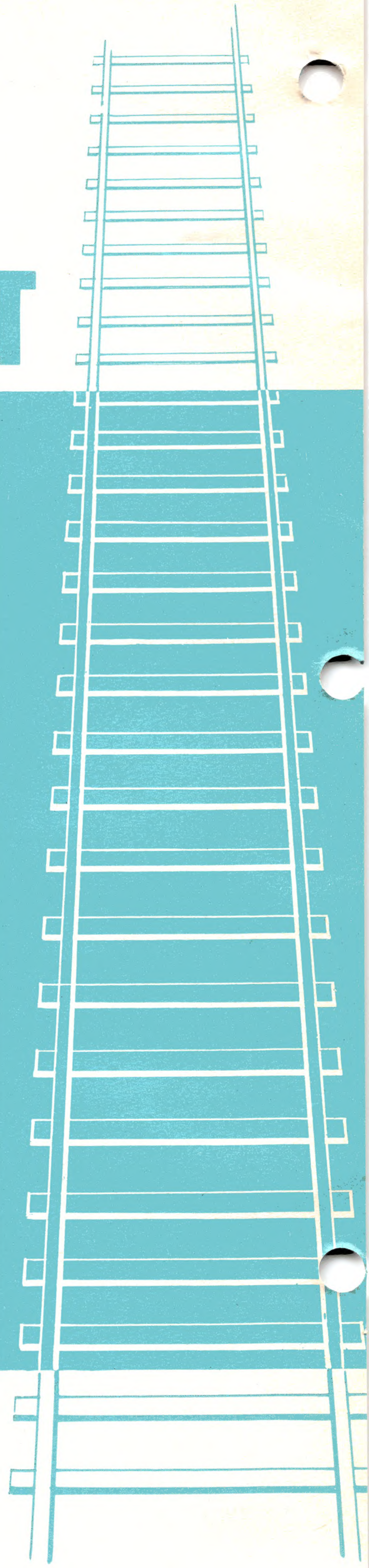
Co-ordination of all rail facilities and their most effective usage as a national network — that is the challenge and the opportunity facing all now involved in "Transport Planning".

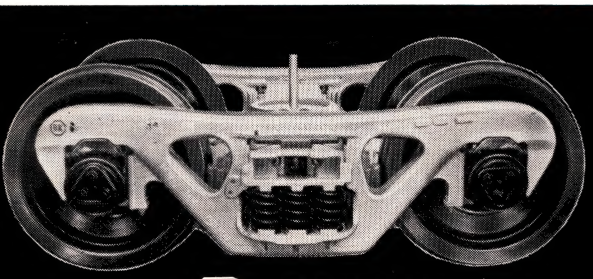
As mentioned earlier, the 1979 Management Conference reviewed railway policies and problems in their full context and on the theme of "Transport Planning and the Railways". I would like to personally express my heartfelt gratitude to the Public Transport Commission of New South Wales for their incredible generosity to the delegates attending the 1979 Management Conference. They were most excellent hosts, and I sincerely appreciate their considerable efforts.

NEVILLE J. GAZZARD
Executive Director

H.R.H. the Prince of Wales alights from the "Prospector" at Northam on Friday, 16 March, after travelling through the Avon Valley as part of his 16-day state tour. Following his visit to Northam, Prince Charles travelled by road to York and to Beverley, where he officially opened the Avondale Agricultural Research Station.

Staying dependable with bk RAILWAY EQUIPMENT





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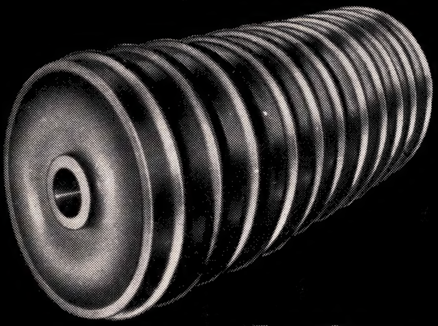

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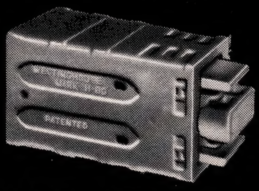
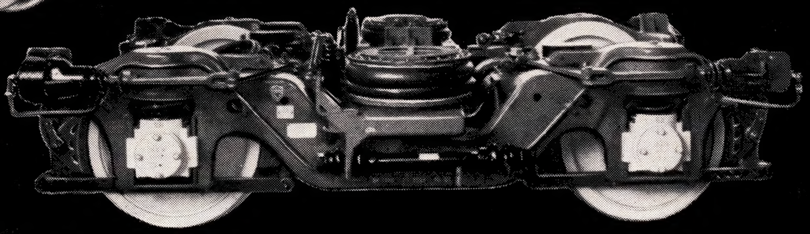


Cardwell Westinghouse Draft Gears



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ANR's New Line to the Alice

The long-awaited all-weather standard-gauge rail link between the south and Alice Springs is on the final approach to the Centre. Australian National Railways' $145 million Tarcoola-Alice Springs rail link is more than half completed; it is on schedule and is within budget.

An Australian National Railways workforce is constructing the actual line, with earthworks, bridges and culverts carried out by private contractors in four main sections of approximately 200 km average length.

ANR recently awarded a $9¼ million contract for the fourth and final stage of earthworks, the 220 km section from Baystone Bore in the Northern Territory, which is scheduled for completion by July 1980. The first trains are expected to run through by November 1980, some twelve months ahead of schedule.

The 831 km link, which started from the tiny railway settlement of Tarcoola on the Trans-Australian line in 1975, is Australia's longest railway project since the completion of the east-west railway in 1917.

The dimensions of the new line and the logistics of laying a railway in the desert are massive.

For example, the line will devour about 1.3 m pre-stressed concrete sleepers (at $18 each), a similar number of initial lengths of rail weighing 85,000 tonnes, nearly 5 m rail clips, 7 m cubic metres of earthworks and more than 1.5 m cubic metres of crushed ballast, 30,000 cubic metres of concrete in bridges and box culverts and 15,000 lineal metres of pipe culverts.

There are 52 bridges along the route, 28 microwave towers and nine new towns. Letting of the earthworks contracts on the project were scheduled so that the works has advanced continuously northwards, ahead of the track-laying operations, at an average rate of four km per week.

The first section, of 160 km from Tarcoola to Robin Rise, contained no bridge works. Earthworks and culvert construction were completed during 1976 under a contract let to F.T. & B.I. Thomson of Adelaide.

The section extending 230 km from Robin Rise to the vicinity of Marla Bore was carried out by a joint venture of two South Australian firms, A.W. Baulderstone and Crawford Earthmovers. The section comprised earthworks, 120 spans of bridging and a large number of culverts.

The third section of earthworks was carried out by the Adelaide-based contractor, MacMahon Construction Pty Ltd, who recently won the contract for the final stage. Earthworks are now 600 km north of Tarcoola while tracklaying has been completed for 480 km.

An additional special contract for two major bridges over the Finke and Hugh Rivers was won by John Holland Constructions Pty Ltd. Work is completed on the Finke River bridge and the Hugh River bridge is well advanced.

* * *

The reasons for the new line have been well documented. Tales of the flood bound Ghan on the initial narrow-gauge line have been media fodder for many years. The temperamental Finke, Alberga and Hugh Rivers have been the main culprits, severing the line for up to months at a time.

The engineer in charge of the present project, Mr Des Smith, recalls that "In the first six years of the '60s there was very little problem with the narrow-gauge line, because of the drought. But in 1967, it was covered by massive flooding. In some parts it was 2.5 metres over the rail and sleepers could be seen floating near the cross arms of telegraph lines".

Water wasn't the only problem. The line was originally laid in 1878 with generally flimsy material; it was designed for light axle loads, and when diesels replaced steam the problem was further compounded because they could only go through a few centimetres of water before shorting the motors.

Approval was given in 1970 for construction of a new standard-gauge railway on an entirely new alignment far to the west of the existing line.

It follows the shortest practicable route which could connect Alice Springs to the Trans-Australian Railway, runs for 831 km, and is 40 km shorter than the old Marree-Alice Springs line. The terrain permits long sections of straight track with easy gradients and curves of large radius.

For the first 450 km from Tarcoola to Chandler, the new line follows high and mainly level ground between the Lake Eyre Basin and the Great Victoria Desert.

Although located away from the numerous drainage channels of the lower Lake Eyre Basin, it still required construction of ten principal bridges, ranging from 100 to 450 metres in length, and 42 smaller bridges.

The crossings of the three principal streams — the Alberga, Finke and Hugh Rivers — are all at sites suitable for high-level bridges.

The bridge over the Alberga River, 487 km north of Tarcoola, one of 42 service bridges on the new line.

Loading ballast at Mount Chandler, 449 km north of Tarcoola.

Concrete sleepers are being used on the new line, with each kilometre of track comprising 1500 concrete sleepers. They will last for at least 50 years and their durability will save millions of dollars each year in maintenance costs.

Another big cost-saving factor will be the installation of a telecommunications system along the track powered by solar energy. It will require much less maintenance than the old telephone hook-ups used on other outback railways.

The tracklaying procedure embodies methods devised by Australian National Railways engineers for highly mechanised rail and sleeper handling and features precise thermal adjustment of rails by stressing, at the time of laying and welding, to compensate for the difference between rail temperature at the time of laying and the desired "neutral" or unstressed rail temperature. The tracklaying procedure was designed around a huge sleeper-laying gantry designed in France for the replacement of old sleepers.

The only major station on the line will be the terminal at Alice Springs. This will provide road-rail interchange of freight, local goods and livestock, and passenger facilities.

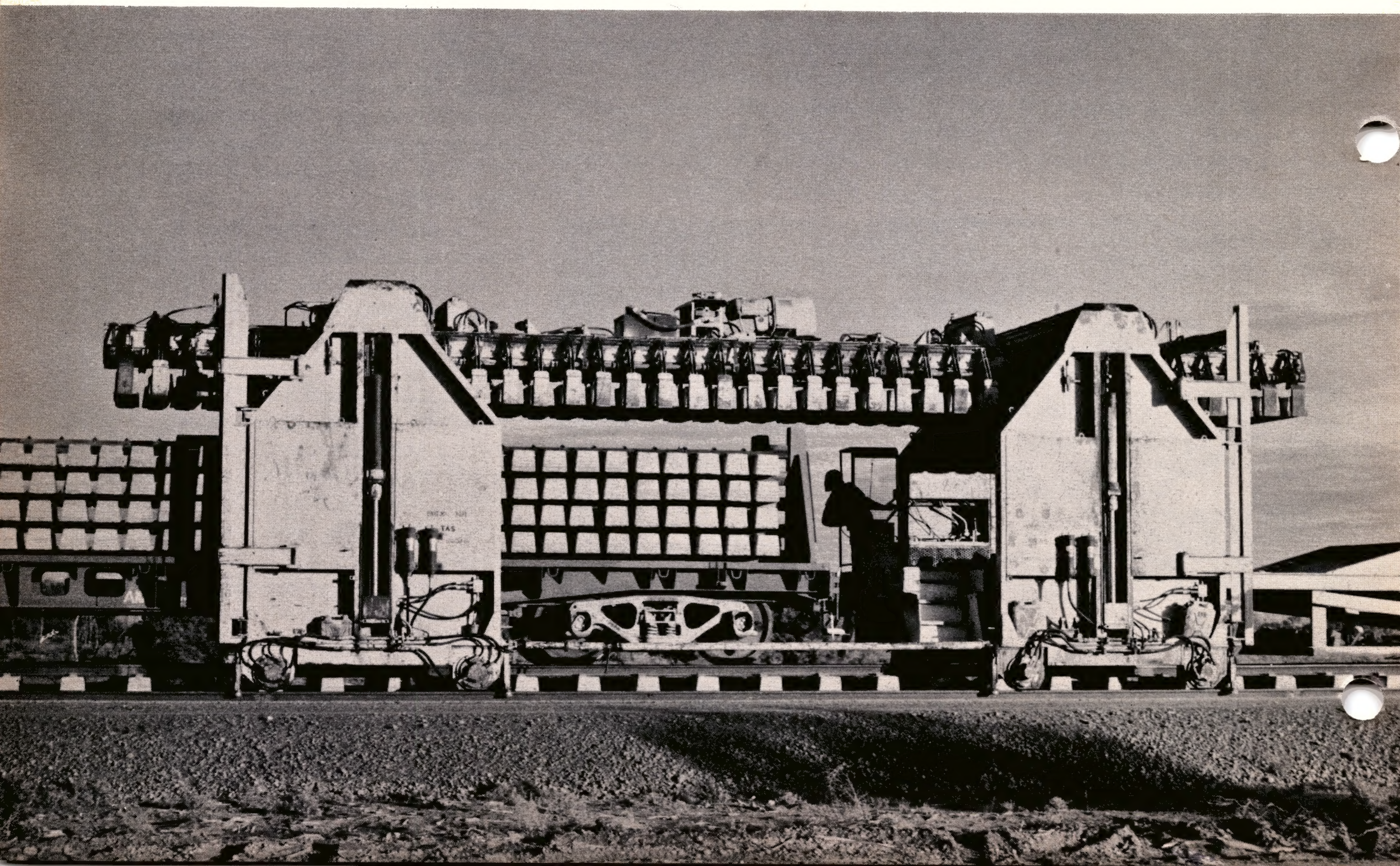
Intermediate sidings between Tarcoola and Alice Springs are located about 70 km apart. Each will have a 1890 metre crossing loop, together with sidings and facilities for handling livestock and the small amount of local freight traffic.

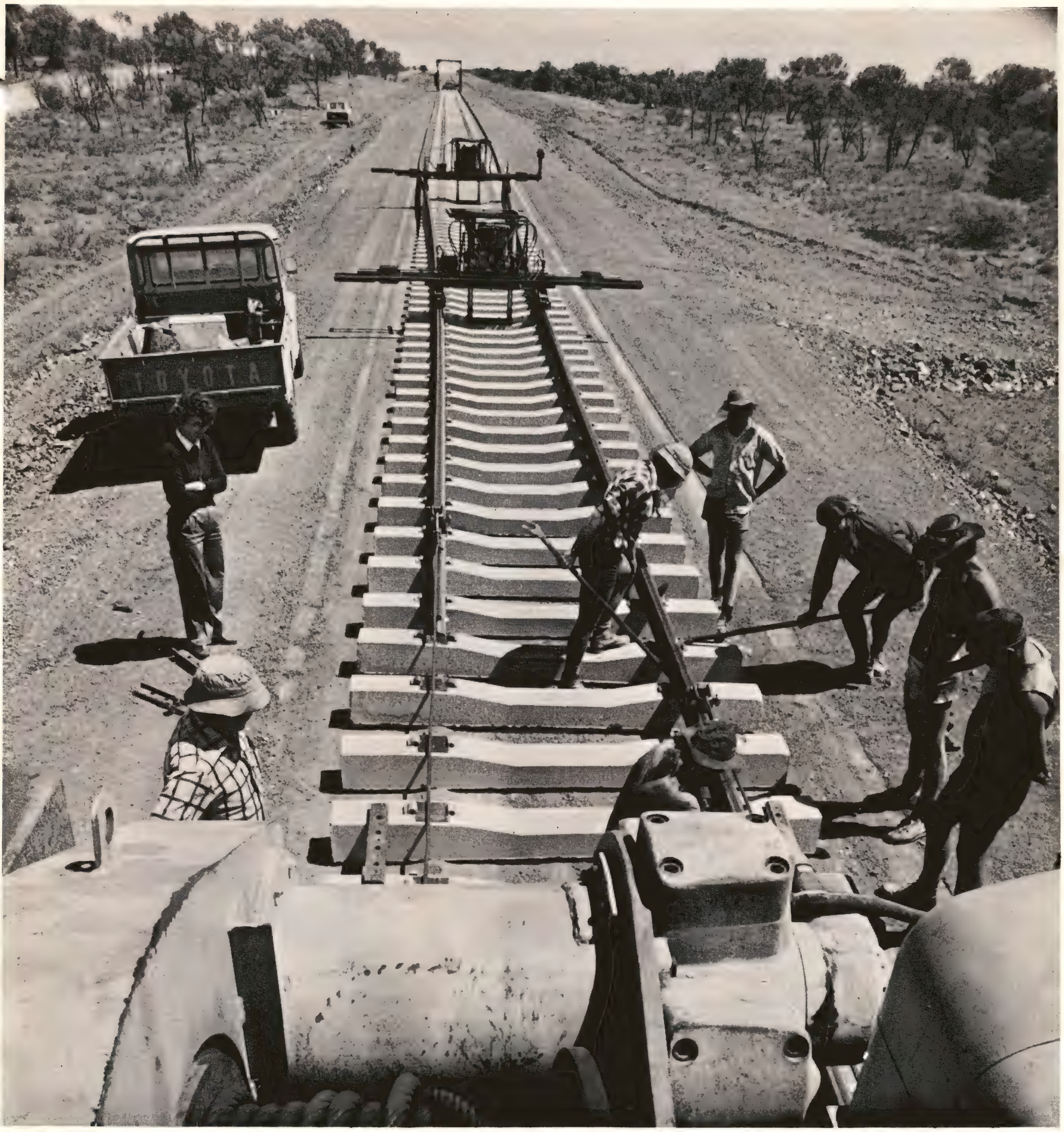
Two of the most important sidings along the line will be Manguri and Kulgera. Manguri, which will service the freight needs of the opal mining township of Coober Pedy and a large area of pastoral country, is expected to become a trucking point for up to 10,000 head of cattle per year from herds in the Oodnadatta and Anna Creek area.

Kulgera will serve as a cattle outlet for several Finke pastoral properties. Other sidings along the line will include Carnes, Gina, Wirrida, Pootnoura, Cadney Park, Marla, Chandler, Marryatt, Impadna and Hugh River.

The new railway has already carried some sheep and wool from stations near Tarcoola and is expected to be opened progressively for commercial use as construction advances.

The Geismar sleeper-laying gantry picks up 40 concrete sleepers, carries them forward on its own runway, and lays them in position in two drops, each correctly spaced and aligned.





In the background the rail-threading machine places the rails on the sleepers; in the foreground the rails are pulled back to set the correct gap as the men fasten and adjust.

The rail-threader transfers the 137 metre rails to their final position on the concrete sleepers.

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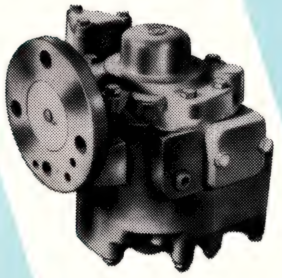

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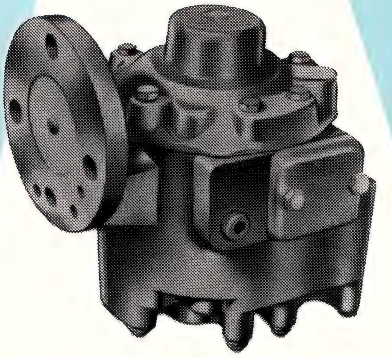

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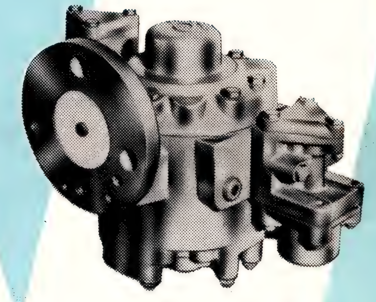
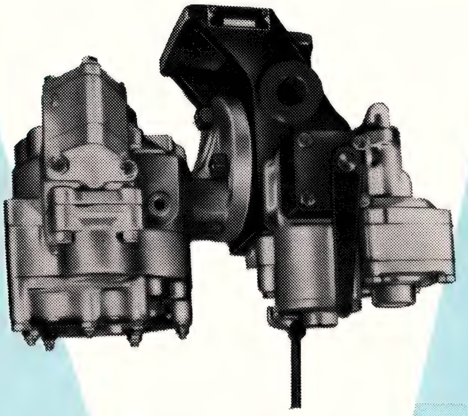
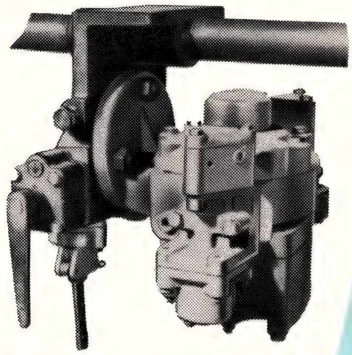


WF3 – With inshot reduction ensuring and retarded recharge for freight stock.



WF Control Unit for empty load relayed freight braking.



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Sydney's Eastern Suburbs Railway introduces new features placing it on a par with the world's most advanced rail systems, and a level of service unparalleled in Australia.

Completion of the $168 million line has been achieved by the Public Transport Commission of NSW well inside three years of the NSW Government's decision to proceed with its construction.

The Hon. Neville Wran, Premier of NSW, when announcing the opening date (23 June) said that a special Board of Review, established by the NSW Government in mid-1976 had recommended construction of the railway to Bondi Junction together with a range of cost-saving modifications, and estimated that the railway would be operational by late 1979 or early 1980.

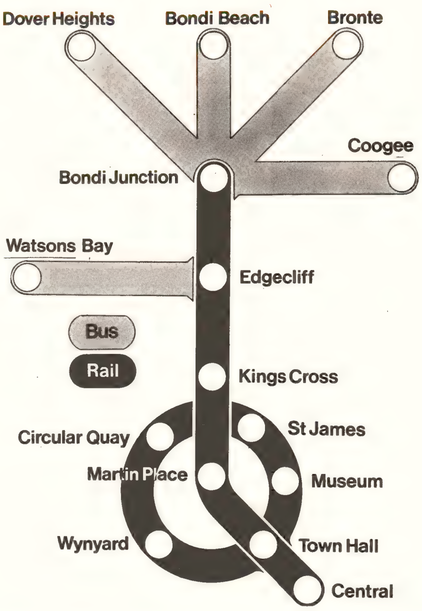
"The State Government has delivered on both these counts by readying the Eastern Suburbs Railway for full operation on June 23," he added.

The Eastern Suburbs Railway, which will initially operate as a fast shuttle service between Central and Bondi Junction (after which it will be integrated with Illawarra Line services), will provide a rapid-transit service moving large numbers of passengers into and out of the city in the quickest possible time, with reduced road-traffic congestion.

Modern Features

An article in the September 1978 issue of *Network* (pp 7-12) outlined many of the features of the new line, which involves a 10.5 km rail link from Erskineville to Bondi Junction (7 km from Central). These features can be summarised as:

- All new double-deck carriages.
- High service frequency — every five minutes in daytime peak and off-peak, Mondays to Fridays; every 10 minutes at weekends and weekday nights; and every 15 minutes on weekend nights.
- Maximum journey times of 7 minutes from Bondi Junction to Martin Place, and 11 minutes to Central, and 8 minutes from Central to Edgecliff.
- Automatic ticket-vending machines, plus automatic fare collection system featuring magnetically encoded tickets to activate barriers.
- New intermodal ticket arrangements, incorporating "Multi-Trip Tickets", weekly, quarterly and yearly tickets, and general concession incentives.
- Ultra-modern station and platform facilities, including closed-circuit television systems at Martin Place, Kings Cross, Edgecliff and Bondi Junction.
- Major bus interchange terminals over the rail stations at Edgecliff and Bondi Junction, providing quick transfer to rail platforms via convenient escalators.

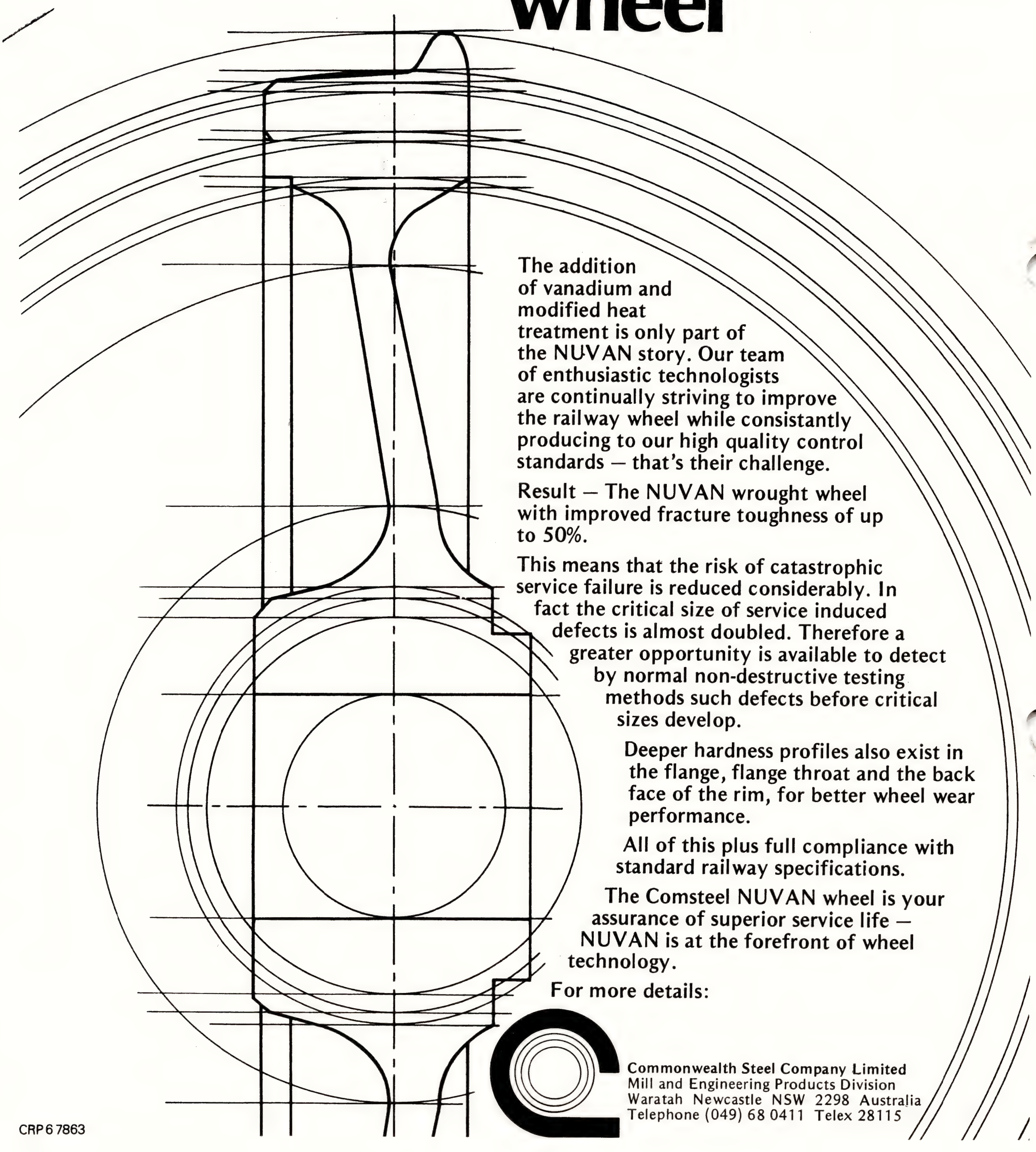


- On completion of the computerised signal complex at Sydney Yard, all points, crossovers and platform indicators will be remote-controlled from that central signal box.

PTC Bus Alterations

The opening of the Eastern Suburbs Line will be followed by carefully controlled alterations to Eastern Suburbs bus services designed to meet bus/rail requirements. These will involve the conversion of bus services to feeder services to the

the "NUVAN" wrought steel wheel



The addition of vanadium and modified heat treatment is only part of the NUVAN story. Our team of enthusiastic technologists are continually striving to improve the railway wheel while consistantly producing to our high quality control standards – that's their challenge.

Result – The NUVAN wrought wheel with improved fracture toughness of up to 50%.

This means that the risk of catastrophic service failure is reduced considerably. In fact the critical size of service induced defects is almost doubled. Therefore a greater opportunity is available to detect by normal non-destructive testing methods such defects before critical sizes develop.

Deeper hardness profiles also exist in the flange, flange throat and the back face of the rim, for better wheel wear performance.

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interchanges, and the extension of many of these services from the interchanges towards the city to serve areas remote from railway stations (e.g. Taylors Square, St Vincents Hospital etc).

For the convenience of residents who may wish to use the rail service, peak-hour express bus services will be operated from Coogee and Clovelly to the Bondi Junction bus/rail interchange complex.

Fares and Ticketing Arrangements

In the fare and ticketing arrangements, efforts were made, as far as practicable, to avoid any changes in transport costs. However, in a few instances variations both upwards and downwards have been found to be unavoidable.

The increases are expected to affect only a very small minority of passengers. To adopt lower fare scales which would completely avoid any increase in costs could have resulted in substantial erosion of revenue.

In the main, single-journey fares for travel by train, or combined train and bus services will be the same as the existing fares. In a few cases costs will be reduced, such as on the longer-distance journeys between Dover Heights and Circular Quay.

The present cost of bus travel from Dover Heights to Market Street, Sydney, is 35 cents, and to points beyond Market Street to Circular Quay 45 cents. The combined bus/rail fare in this case will be 35 cents, which is in line with the general cost of travel by rail over similar distances on other lines.

Weekly "ESR Bus/Rail Pass"

For regular commuters a special weekly "ESR Bus/Rail Pass" will be available for unlimited bus travel in the catchment area east of Edgecliff or Bondi Junction stations, unlimited rail travel on the Eastern Suburbs Railway, plus unlimited bus or rail travel within the Sydney Inner-City area.

Similar passes will also be available on a quarterly or yearly basis. The cost of a quarterly ticket will be 11 times the weekly fare. The cost of yearly ticket will be 40 times the weekly fare, which represents a very substantial discount.

Intermodal "Multi-Trip Tickets"

To encourage the pre-payment of fares by off-peak travellers, and thereby reduce the workload of one-man bus staff, a special intermodal "Multi-Trip Ticket" will be available, which will allow twelve combined bus/rail journeys for the price of ten trips. These will be available at ESR stations, and will be valid for three months.

Limited Through Buses

It is anticipated that, in the majority

Closed-circuit television enables staff to monitor all parts of ESR stations. Some stations have up to 13 cameras in strategic positions and, by pressing a button, staff can project on monitors what is happening in various locations.

The automatic fare collection system features magnetically encoded tickets which activate the barriers.

Ticket-vending machines are easy and quick to operate.

of cases, persons travelling from locations east of Bondi Junction and Edgecliff interchange stations to destinations east of the main city area, namely east of College Street, will be able to undertake their journey on a through bus at existing fares.

However, there will be some cases where a change of bus at the interchange will be necessary, such as for journeys from Vaucluse to Darlinghurst.

In these cases a person who buys a ticket on a daily basis will be required to pay separate fares on each bus, and this could result in an increase in cost. Ways of avoiding this have been investigated, but no satisfactory transfer arrangement that is simple to introduce and free of the opportunity for malpractice has been found. Fortunately, comparatively few passengers are likely to be affected.

Rail Travel Encouraged

To encourage travel on ESR trains and to discourage the use of "through" buses to the Sydney Inner-City area, a flat fare, which is 10 cents higher than the cost of a single-journey combined bus/rail ticket, will be charged for through bus journeys from a point east of Bondi Junction or Edgecliff interchange stations to a destination on the City side of College Street, Sydney, and *vice versa.*

Many Benefits

The new Eastern Suburbs Railway introduces a new concept in commuter travel with many advantages, such as:

- A reduction in road traffic with a consequent reduction in pollution of the atmosphere.
- Conservation of fuel resources with the swing to pollution-free, energy-saving electric train travel.
- Major relief to the congested City Circle rail system when Eastern Suburbs trains are integrated later with Illawarra Line services.

Whilst residents of the Eastern Suburbs are the main beneficiaries of the new railway, the benefits will ultimately flow throughout the whole Sydney community as suburban trains on other lines will operate more efficiently, and road traffic in the city and eastern suburbs will show a marked decrease. The passenger-carrying capacity of the Eastern Suburbs Railway is equal to that of eight-line highway — and without the environmental, pollution and fuel problems caused by such a highway.

The new $168 million Eastern Suburbs Railway has certainly been worth the wait!

SOME FURTHER FACTS:

The costs ($168 million) comprise: Design and planning $15m; land resumptions $8m; preparatory work and diversions $9m; tunnel $50m; viaducts $6m; trackwork $7m; overhead wiring and signalling $14m; stations $46m; escalators $9m; trains $4m.

The total length — 10.5 km comprising box tunnels (cut and cover) 1.5 km; arch-drivers tunnels 7.0 km; viaducts and open sections 2.0 km.

Excavation (stone, spoil) — 1.5 million tonnes.

Concrete poured — 500,000 cu metres.

Steepest grade — 1 in 32, on both sides of Town Hall, equalling the steepest grade in the Sydney metropolitan area (between Wynyard and Sydney Harbour Bridge approach).

Lowest point — 13 metres below sea level, between Central and Town Hall (below Hay Street).

Trains — four double-deck cars in peak hours (two power cars and two trailers), seating 488 passengers.

Power — 1,500 volts DC, via overhead wiring.

Signalling — provides a basic 90 seconds headway between trains. Track circuits feature high frequency jointless resonated circuits, dramatically reducing the need for insulated joints.

Escalators — 39 provided; the longest (concourse to platforms at Martin Place) provide 16 metres vertical rise (the height of most five-storey buildings).

The estimated daily passenger usage — 43,000 (13 million journeys annually).

The Window Seat

(continued from page 46)

Mr V. H. Dyason, General Manager of Australian National Railways, is completing a six-weeks tour of British and European railway systems. It is his first overseas journey since assuming his present position, in 1975.

Mr Dyason has had discussions with British Rail officials on railway social service obligations, and on BR experiences with concrete sleepers, of which ANR is Australia's major user.

He attended the 22nd session of the International Railway Congress Association in Stockholm and an International Transport Exposition in Hamburg, and visited railway manufacturing, research and testing installations in Switzerland.

* * *

German State Railways have introduced special labels for wagons carrying explosives or volatile loads. The labels carry two numbers: one identifies the contents, the other indicates the level of danger. Rail personnel have to carry the code key with them at all times. The coded labels are fire resistant, and remain readable for at least 15 minutes after fire as broken out.

* * *

Japanese National Railways has introduced special Swallow Express freight trains, operating on leasing contracts with private consortiums of freight agencies, and running between Tokyo and Osaka. All trains have been fully booked for some months. Through them, JNR hopes to reverse the decline in freight tonnages experienced over the last 15 years.

A Century of Government Rail in Western Australia

Geraldton will be the main venue for celebrations to commemorate a hundred years of Government railway history in Western Australia. The first Government railway was officially opened on July 26, 1879 to operate between Geraldton and Northampton (480 km north of Perth), providing a 53 km link between the lead and copper mines and the coast.

The local historical society is planning to place a time capsule in the forecourt of the present Geraldton Railway Station with a small ceremony on Thursday, July 26, 1979; and a plaque is to be unveiled at the original railway station in Marine Terrace on Saturday, July 28. This building is being re-furbished as a museum and an exhibit will show the growth of railways over the century.

Vintage steam train "Leschenault Lady" will be taken 670 km from Bunbury to Geraldton to provide a series of local excursions during the weekend. Guests attending the unveiling of the plaque will be escorted on a short steam trip to Narngulu and back. This will be followed by a civic reception and then by Westrail's official dinner.

* * *

The second Government line, built from Fremantle through Perth to Guildford, a distance of 32 km, opened on March 1, 1881, to form the first section of the eventual Eastern Railway to the goldfields.

A 34 km link to Chidlow's Well was opened on March 11, 1884. On June 29, 1885, the line was extended a further 79 km through Spencer's Brook to York, providing a rail link between the rich Avon Valley east of the Darling Range and the coast.

The line between Spencer's Brook and Northam was completed on October 13, 1886. The entire Midland-Northam railway, via Swan View, remained in service until February 13, 1966, when the Avon Valley dual-gauge railway was opened. Trains transporting iron ore from Koolyanobbing continue to operate as far as Wundowie on the old route.

A feverish desire for railway expansion seems to have possessed the young community in the 1880s, and many small country lines appeared on the railway map. The major ones were between York and Beverley, Geraldton and Walkaway, and Clackline and Toodyay.

The Great Southern Railway

The first proposal to sanction private railways under a land grant system was put forward in 1882 — a line from the southern port of Albany northward 390 km to Beverley in return for 404,700 ha of land. This proposal did not find favour until 1884, when a London syndicate accepted the offer on the basis of a grant of 3000 ha of land for each kilometre of railway built.

The line between Albany and Beverley opened on June 1, 1889, and was worked initially by the Western Australian Land Company. The Government took control of the line on December 1, 1896, at a cost of $2.2 million.

The Midland Railway

During construction of the Albany-Beverley railway, another agreement was signed for a 450 km line between Midland and Walkaway, connecting at the terminal points with Government lines.

The agreement was based on that of the Great Southern line, a grant of 3000 ha per kilometre of railway. Lack of capital caused a serious interruption to the construction until the Midland Railway Company was floated in London to take over the concession.

The railway finally opened on November 24, 1894. The company continued to own and operate it until 1964, when its integration into the State system brought easier co-ordination of services to and from the rapidly developing north-west areas.

Goldfields Railways

In the 1880s and 1890s Western Australia was the scene of startling gold discoveries — Southern Cross in 1887, Coolgardie in 1892, both to be eclipsed by Paddy Hannan's find at Kalgoorlie, 40 km farther east, the following year.

In the Murchison district, east of Geraldton, less sensational but extremely rich finds were reported and the thousands of people attracted by the discoveries were soon loud in their demands for transport. To meet their needs, a programme of Government railway construction was designed for both the gold-mining centres to the north and east and for the expanding agricultural and timber interests to the south.

The Eastern Goldfields railway link began with the opening of the 275 km line from Northam to Southern Cross in 1894. It was soon apparent that the heavy traffic to the goldfields demanded better grades over the Darling Range, and on July 1, 1896, the main eastern line was deviated from the Mahogany Creek route to run between Bellevue and Mount Helena, through the Swan View Tunnel.

The rail link reached Kalgoorlie, 600 km inland, on January 1, 1897, and an extension to Menzies was opened on March 22, 1898.

Contractors operated the Eastern Goldfields railway until February 13, 1899, when the Government took control. An extension was opened to Laverton on February 1, 1905, extending the rail link 950 km from the port of Fremantle.

The call for railway facilities for the Murchison Goldfields was met by a line from Geraldton to Mullewa in 1894, followed by an extension to Cue in 1898. The railway was extended to Nannine in 1903 and, in 1910, to Meekatharra and out from Mount Magnet to Sandstone. Between 1894 and 1899 over 1600 km of Government railway was added to the network.

Other phases of country life received scant notice until indications began to appear of a decline in gold mining. More attention was then given to the development of agricultural and pastoral industries, with such striking results that, by the end of 1909, light agricultural railways were reaching out in all directions in the eastern, southern, and south-western districts.

The South West Railways

On March 12, 1891, a line was opened from Bunbury through rich agricultural districts to Boyanup. The inconvenience of such an isolated line was soon apparent and dissatisfaction amongst settlers gave rise to the opening of a 175 km connecting line between East Perth and Pinjarra on May 2, 1893, and

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from Pinjarra to Picton Junction on August 22 in the same year.

Settlement and production in the south-west increased and, to keep pace, the original Bunbury-Boyanup line was connected to Donnybrook on November 16, 1893, and to Busselton on December 26, 1895. The extension from Donnybrook to Bridgetown was completed on November 1, 1898.

By 1914 the Government had 5362 km of narrow-gauge railway open for traffic. The lines were built to serve agricultural and timber interests, with the exception of an isolated 55 km railway to transport copper from Ravensthorpe to Hopetoun on the south coast.

In the 1920s there was another surge in demand for new agricultural land, and the provision of railway lines to link country producers and city markets became a matter of urgency.

The 1930s were depression years and a vast pool of unemployed labour was available for work. The government of the day faced this demand with a series of public works, including a number of light surface-laid lines.

Some of these light lines have proved to be a continuing handicap to modern railway operation in the southern portion of the State, restricting the axle-loading of trains and bedevilling the Government with high costs of upgrading as new mining projects have been developed and the need for heavier unit trains has grown, especially during the past 15 years.

Mining Development

In the 1960s, spectacular development of Western Australia's vast mineral resources resulted in the construction of new Government railways in the southern areas of the State and new private iron-ore railways in the north-west.

On July 29, 1963, a 40 km narrow-gauge line was completed from Jarrahdale to Kwinana to transport bauxite from deposits in the Darling Ranges to Alcoa's alumina refinery at Kwinana. Originally built to move one million tonnes annually, it is now carrying more than four times that amount.

Western Mining Corporation's iron-ore deposit in the Koolanooka Hills, 20 km east of Morawa, began production on February 4, 1966 and ore was railed 225 km to Geraldton for shipment to Japan. This operation ceased, however, with the termination of the contract in 1974.

A $10 million, 95 km narrow-gauge railway between Eneabba and Dongara was completed in 1976. This now carries over one million tonnes of mineral sands from Eneabba to Meru for processing and for export through the port of Geraldton each year.

Owing to an increased demand for coal, $4 million has been spent on upgrading the 50 km narrow-gauge branch line between Collie and Brunswick. The track has been re-railed with 47 kg/m rail.

Until early 1978 coal trains were restricted to a maximum axle load of 16 tonnes. Following re-railing, axle loads increased to 19 tonnes, permitting use of new coal wagons with higher payloads.

Standard Gauge

Although the need for unification of railway gauges in Australia was appreciated as early as the turn of the century, a decision by BHP in 1960 to spend $110 million on mining iron-ore deposits at Koolyanobbing and building an integrated iron and steel industry at Kwinana was the catalyst for construction of a standard-gauge railway between Kwinana and Kalgoorlie.

The factor which attracted the steel industry was provision of low-cost transport to carry the iron ore, initially one million tonnes annually, from Koolyanobbing to Kwinana, a distance of 500 kms.

The initial phase of standard-gauge construction started in 1962 and the first iron-ore train was in motion by mid-1967.

The last length of standard-gauge rail was laid to Kalgoorlie in August 1968. This project gave Westrail the impetus to develop a combined narrow- and standard-gauge rail freight complex at Kewdale and Forrestfield 10 km south-east of Perth, with close rail links joining the industrial centres of Fremantle and Kwinana.

Kewdale began operating in November 1968 and over the past decade it has developed into a major freight handling centre covering 120 hectares.

The Forrestfield project covers 247 ha and incorporates composite-gauge marshalling yards, including an automatic hump retarder, narrow-gauge yard, and locomotive, wagon and carriage depots. The introduction of the Forrestfield/Kewdale rail complex permitted the closure of obsolete goods handling and train marshalling facilities at Midland and Perth.

It is now over ten years since the standard-gauge line was opened between Kalgoorlie and Kwinana. Traffic forecasts for this line, estimated to be reached by 1985, were exceeded by 1972 and Western Australia has now started upgrading the line to higher load/speed standards because of its importance, both to the region it serves and to the State as a whole.

The vital role of this line can be readily assessed from the fact that, in a total of 18.6 million tonnes of paying freight hauled by Westrail in the year 1977/78, 6.5 million tonnes were carried on the 500 km Kwinana/Koolyanobbing link. To rehabilitate this line, $76 million is to be spent over five years.

The first phase in this project was the signing, in November 1977, of a $17.5 million contract for the manufacture of concrete sleepers, the largest single contract of its kind in Australia to that time.

The dual-gauge concrete sleepers in the Avon Valley section are believed to be the first in the world, and it will be the first Government railway project in Australia to incorporate the 60 kg/m rail.

The equipment used for its rehabilitation will be the most modern available.

West Kalgoorlie-Esperance Standardisation

Discovery of nickel deposits during the 1960s, particularly at Kambalda, 50 km south of Kalgoorlie, and the export of concentrates through Esperance and Kwinana and of salt from Lake Lefroy, resulted in an increasing volume of traffic on the Coolgardie-Esperance line. To cater for this, a new 15 km spur was constructed from Lake Lefroy to Widgiemooltha and the 300 km Widgiemooltha-Esperance railway was upgraded.

Following standardisation of the Kwinana/Kalgoorlie railway, and the establishment of nickel refineries at Kwinana and a smelter at Hampton near Kalgoorlie, a new 90 km standard-gauge railway was built from West Kalgoorlie to Lefroy. This line, together with conversion of the 306 km Lefroy-Esperance section to standard gauge, was opened on September 16, 1974.

Discoveries of nickel deposits north of Kalgoorlie resulted in conversion of the 260 km Kalgoorlie-Leonora railway to standard gauge. This was also opened on September 16, 1974. To cope with current and projected demands for haulage by the nickel mining industry, a $1.4 million two-year contract for upgrading the line was awarded in April 1978.

Passenger Trains

In the State's early days the railway was the major, and sometimes the only, method of travel and communication. But, as road transport came to the fore with its door-to-door convenience, there was a decline in the patronage of passenger rail services.

Westrail met this challenge with the introduction of passenger road services in 1941; these have developed over the years to become the railway's major arm of passenger transport.

Interstate services and local rail services to Kalgoorlie and Bunbury have retained their popularity. The narrow-gauge "Westland" passenger train to Kalgoorlie was phased out after 32 years with the construction of the standard-gauge line, and, on March 1, 1970, the "Indian Pacific" was introduced between Sydney and Perth, enabling passengers to cover the 3,960 km journey without any change of train.

On November 29, 1971, "Prospector" railcars began operating on the 655 km route between Perth Terminal and Kalgoorlie, replacing the narrow-gauge "Kalgoorlie" overnight train which had been running since 1897 and took some fourteen hours to cover a 43 km shorter route. "Prospector" has been acclaimed the fastest train in Australia, completing the journey to Kalgoorlie in under eight hours.

"Australind" operates the 185 km between Perth and Bunbury on a daily return service six days a week. Patronage on this train has increased appreciably over the past two years and rolling-stock is presently being refurbished at Midland Workshops.

Locomotives

Before the advent of diesel locomotives in 1954 the State's rail system operated 430 steam locomotives and hauled 3.5 million tonnes of paying traffic annually. By comparison, 205 diesel locomotives are now in service and in 1978 they hauled 18.6 million tonnes of paying traffic.

To indicate the productivity improvement from the higher-powered diesel locomotives and easier track gradients of the standard-gauge line, a 2,600 tonne payload of grain can now be hauled from Merredin to the coast in less than half the time taken for a 375 tonne maximum payload by the most powerful steam locomotive in service on the narrow-gauge line.

The progressive change from steam to diesel power in the operation of metropolitan passenger rail services began in November 1954 and was completed in October 1968.

Railway Road Services

Railway Road Services started in November 1941, with one bus, powered by a gas producer. This operated between Perth and Kojonup, a distance of 256 km. The route was extended to Cranbrook in December 1946 and to Albany and Walpole in September 1949.

A fleet of fifty buses now operate 7000 route kilometres throughout the State, the longest run being between Perth and Meekatharra, a distance of 770 km. Twelve air-conditioned Mercedes buses were introduced on major trunk routes during 1977/78 as part of a general re-equipment plan.

The introduction of trucks to work in association with rail services started just after World War II when a number of ex-Army three-ton vehicles were obtained for delivery and pick-up work between suburban rail depots.

The road freight service became part of the Road Services Division in 1955, developing into today's fleet of 57 commercial trucks and 27 trailers and covering a route distance of 3,500 km.

The co-ordination of road truck operations with rail services has led to more efficient handling of perishables and other goods, as well as faster transits to destination.

Workshops

The railway workshops at Midland, which began operations in 1904, occupy an area of 68 ha, of which 11 ha are under cover. They handle all phases of manufacture and repair, including construction and maintenance of rolling-stock, and the manufacture of points and crossings and other railway components. Rolling-stock construction has included railcars, and carriages, as well as steam locomotives.

Recent achievements have included the design and manufacture of aluminium-bodied grain-hopper wagons (claimed to be the largest in the Southern Hemisphere), wagons for alumina, bauxite, mineral sands and nickel concentrate, as well as aluminium rail tank cars built under contract for oil companies and coal wagons for the State Energy Commission.

Central Administration and Corporate Image

The foundation stone for Perth Central Station was laid on May 10, 1880. With the commissioning of Perth Terminal at East Perth for interstate passenger services on June 15, 1969, Perth Central Station was renamed City and East Perth Station was renamed Claisebrook.

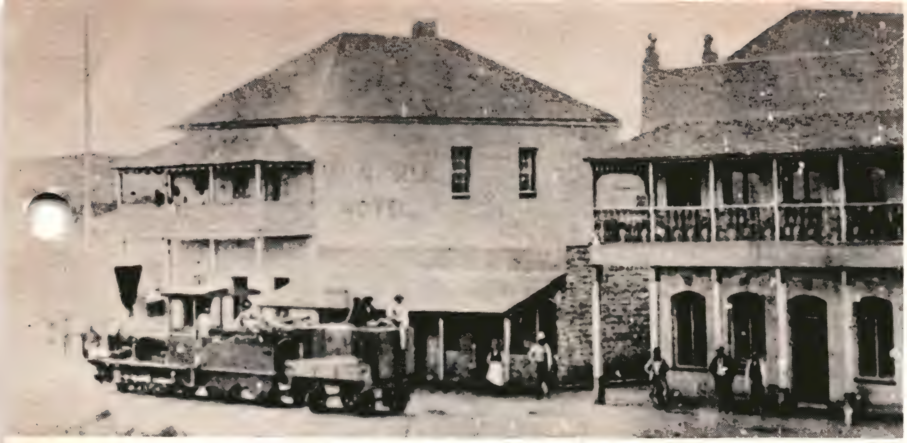
Construction work started in 1973 on a modern six-storey combined passenger terminal and administrative building at Perth Terminal to accommodate some 800 members of Head Office staff of the various branches previously housed in nine different locations around the city. The new building, "Westrail Centre", was officially opened by the Premier of Western Australia, Sir Charles Court, K.C.M.G., O.B.E., on November 12, 1976.

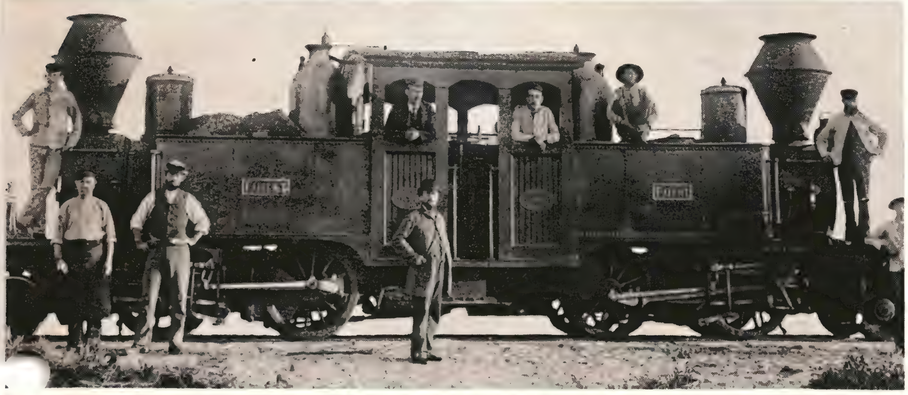
Just prior to the move into its new headquarters, WAGR launched its new corporate image. This comprises an emblem, the name "Westrail" and the use of three distinctive colours, orange, blue and yellow for all its equipment. Standardised lettering and signs are also part of the image.

In the increasingly competitive field of transport the railways wanted to present an image of a fresh and co-ordinated approach to modern business. They had undersold themselves for too long.

And what of the future? Westrail's forecast is an optimistic one — secure in the knowledge that as the State progresses the railway will keep in step to provide a modern and efficient transport organisation, ready for whatever demands may be placed upon it.

Westrail



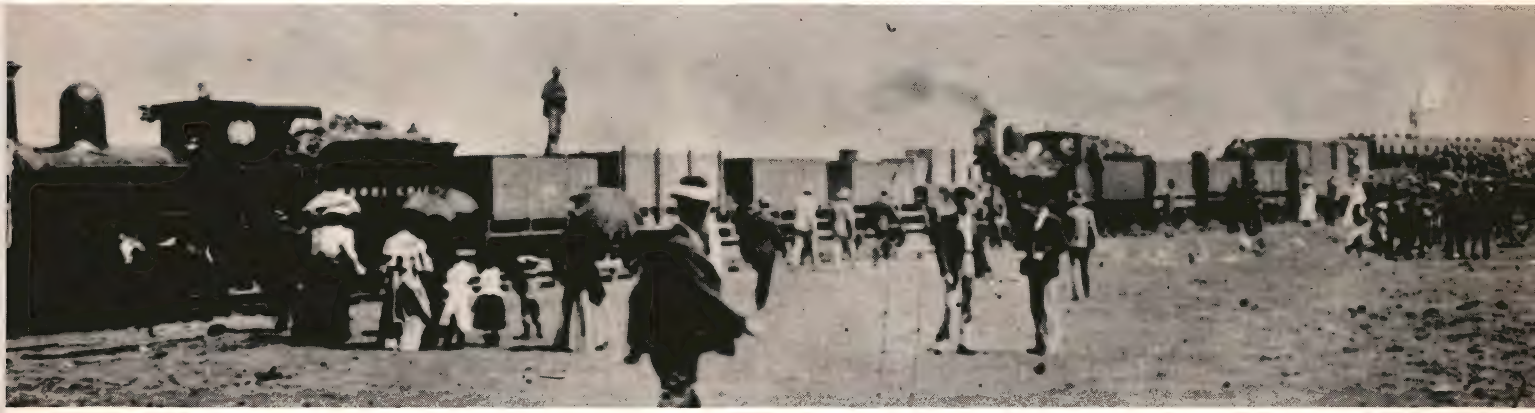


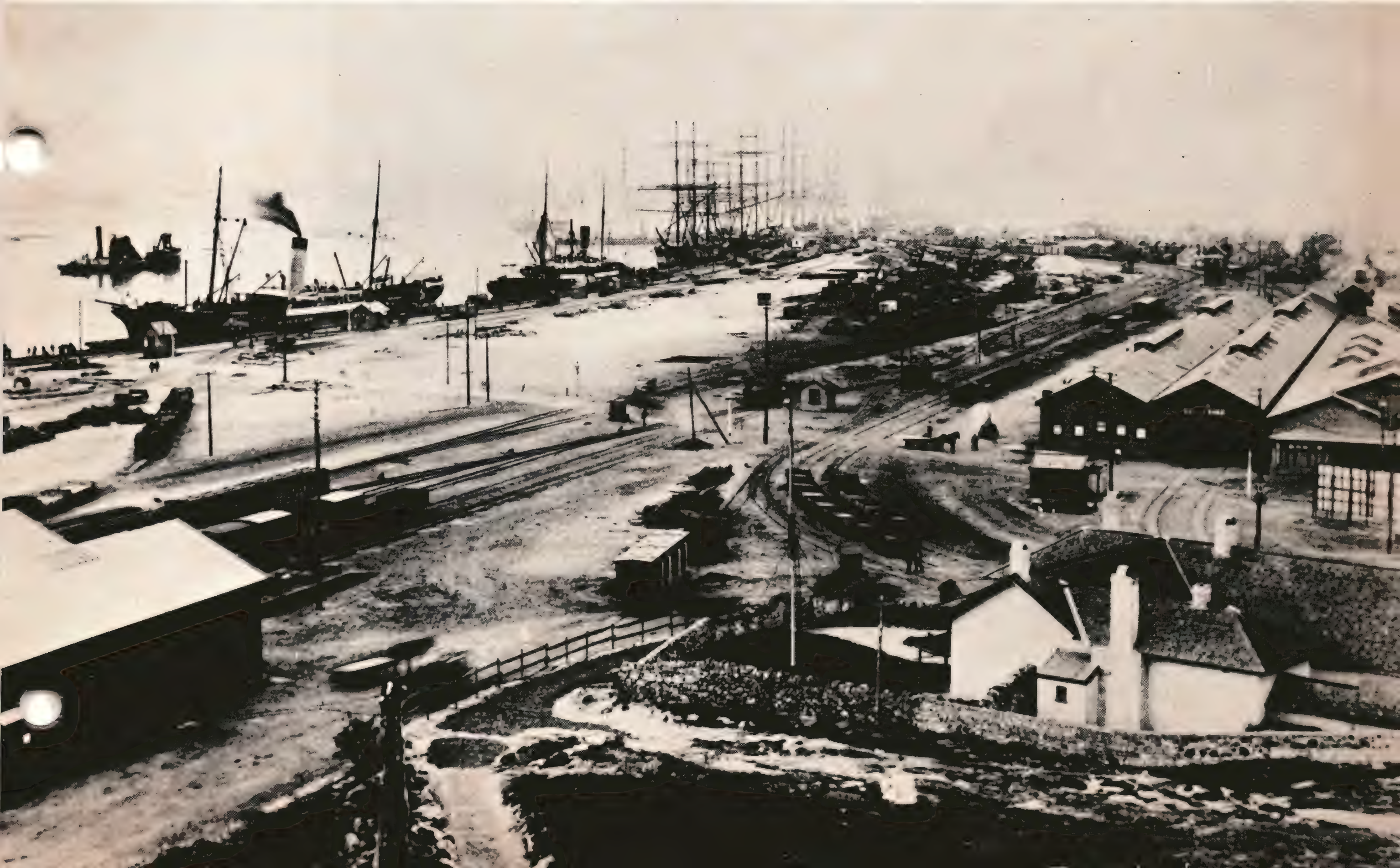
Some Westrail Photographs 1879-1979

Left: The first departure from Geraldton for Northampton, on 26 July 1879; a "Double Fairlie" locomotive, built by Avonside Engine Co. Ltd, Bristol, and delivered at Geraldton in July 1879.

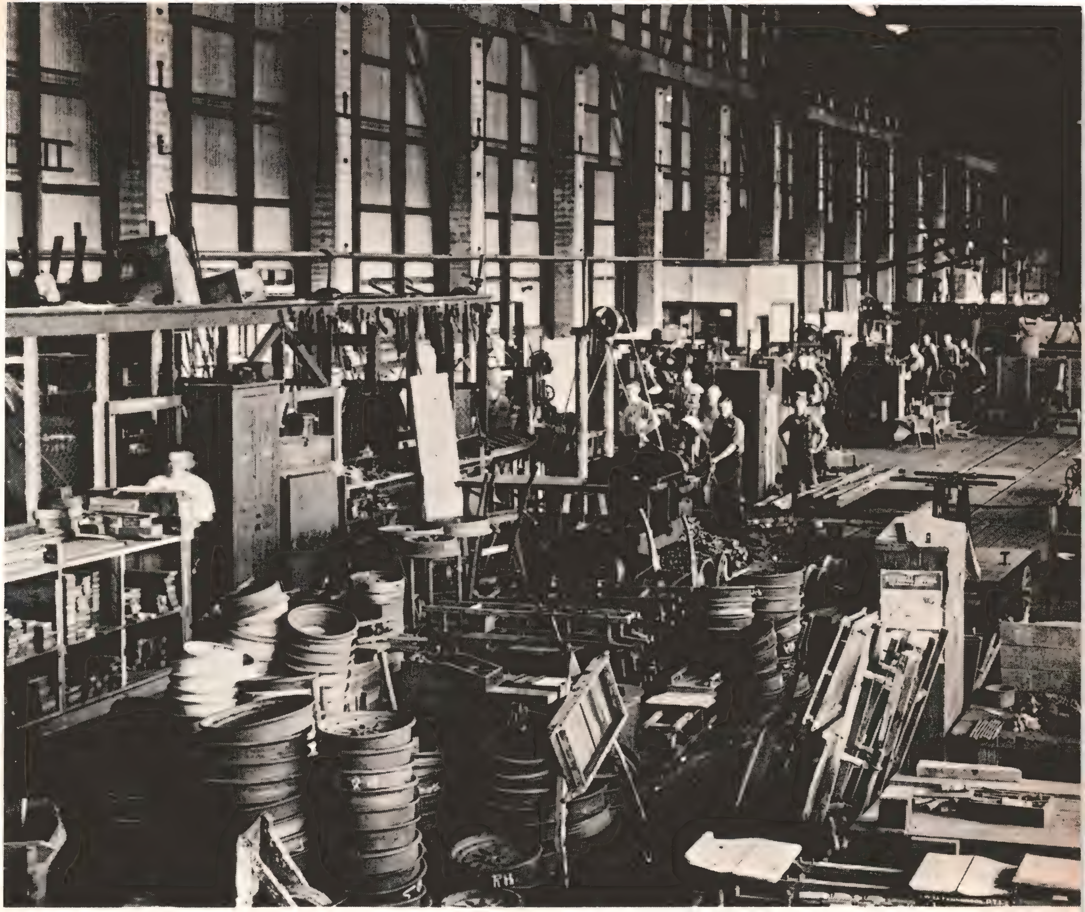
Centre: "Maori Chief" arrives at Coolgardie, with the first train, on 23 March 1896.

Bottom: Fremantle Harbour and railway goods shed, 1896.

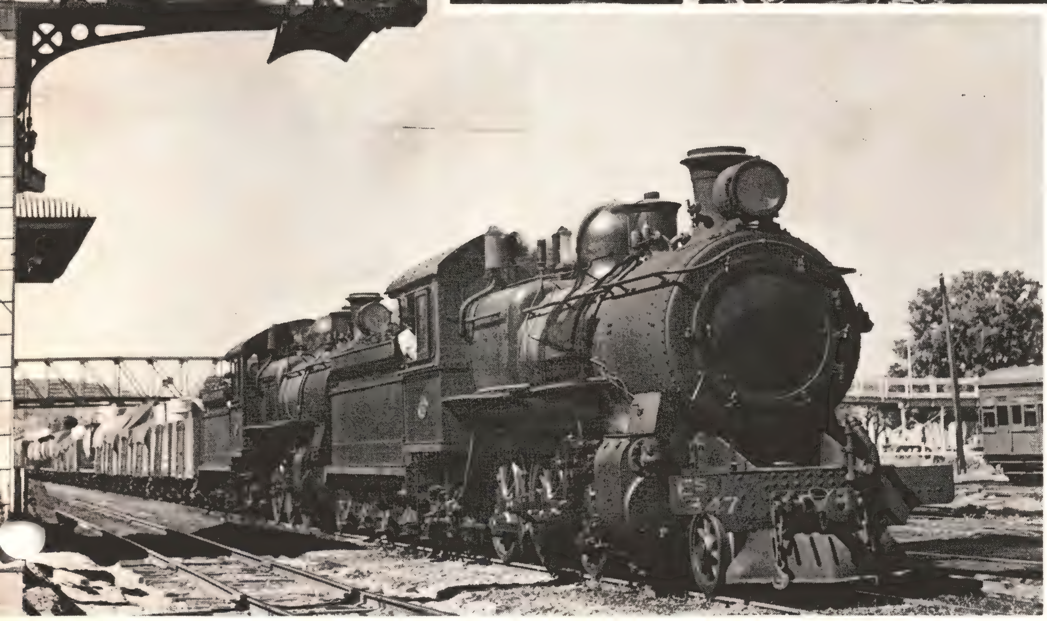




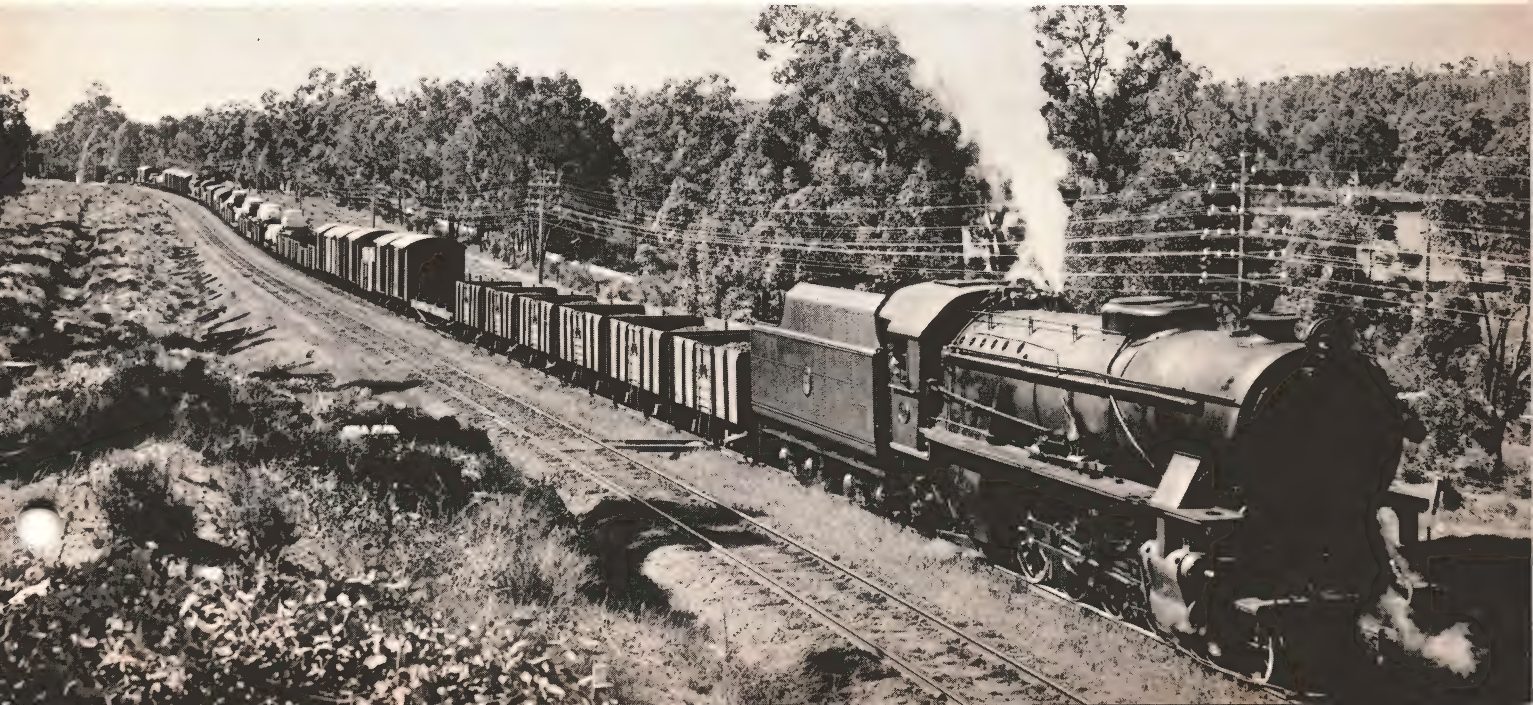
Opposite: Ministerial Special to Kalgoorlie (top); the Perth Railway Station (centre) about 1900; the first train leaving Kalgoorlie for Port Augusta, 1917.



Above: Midland Workshops — interior of track equipment shop.



Left: "ES" locomotives hauling mixed freight, 1950s. Below: a "V" class locomotive, introduced in 1955, the most powerful non-articulated loco then operating on any narrow-gauge Government line.



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Railways

1979~1980 CALENDAR

1979

JULY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST

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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SEPTEMBER

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OCTOBER

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
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28	29	30	31			

NOVEMBER

S	M	T	W	T	F	S
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of Australia

Diesel operations began on 28 November 1954. An "X" class locomotive (above) hauls mixed goods on the Bridgetown Bridge across the Blackwood River.

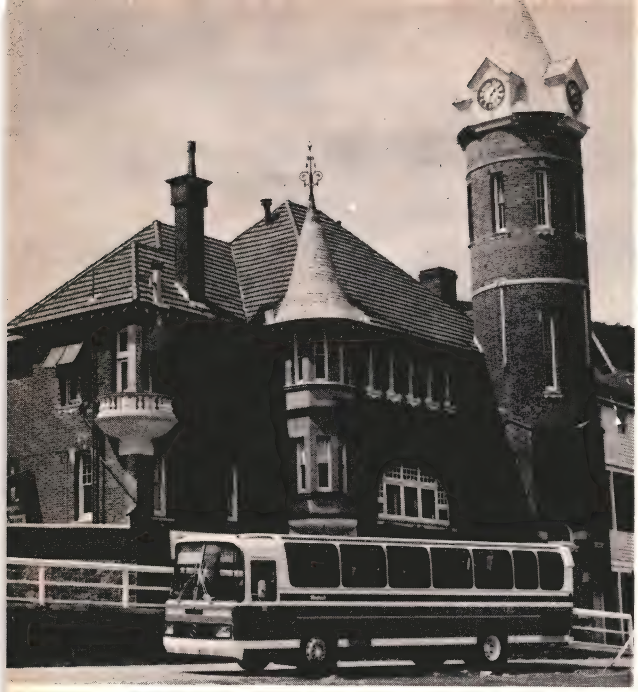
An explosion (left) marked the beginning of the standard-gauge line through the Avon Valley. Premier Brand (l) with Minister for Railways Court (now Premier).

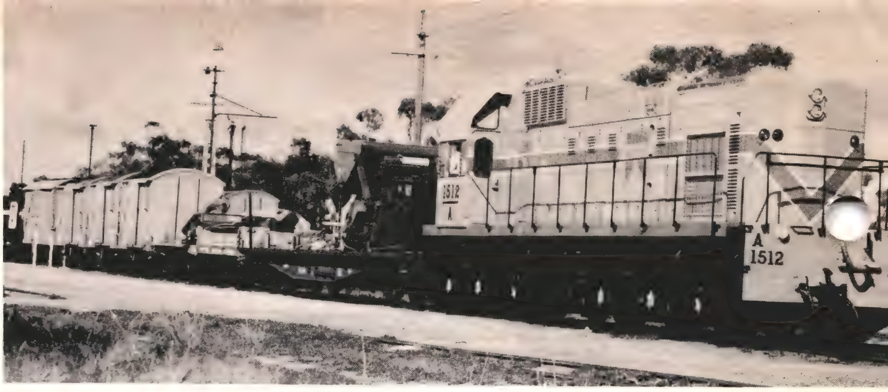
The 43 km line between Kwinana and Jarrahdale, was opened on 29 July 1963. It is currently carrying four million tonnes annually.

The first standard-gauge through freighter leaves Kalgoorlie for Perth, 3 November 1968.

Iron ore began to move from Koolyanobbing to Kwinana on the standard gauge in April 1967. Here, two "L" locomotives approach BHP's Kwinana refinery.

The last steam locomotive leaves the Midland Loco Depot, 28 May 1971



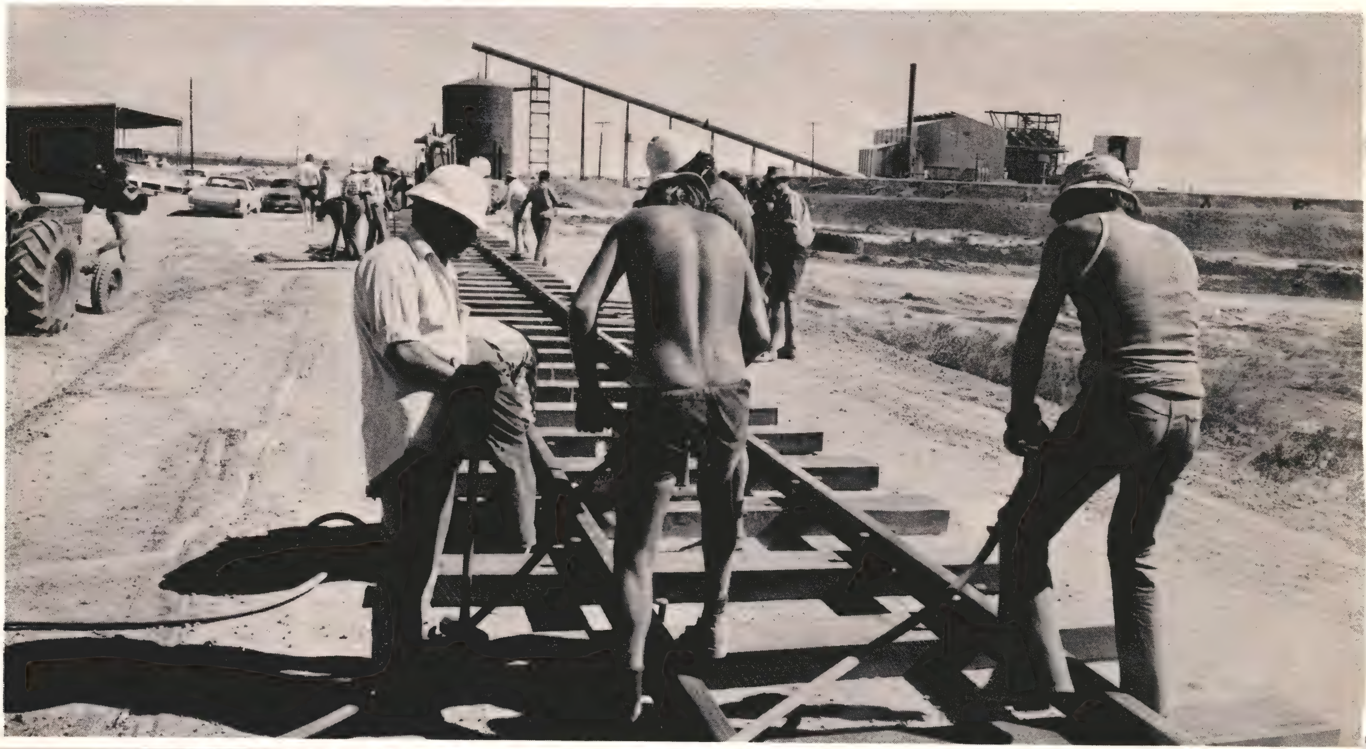


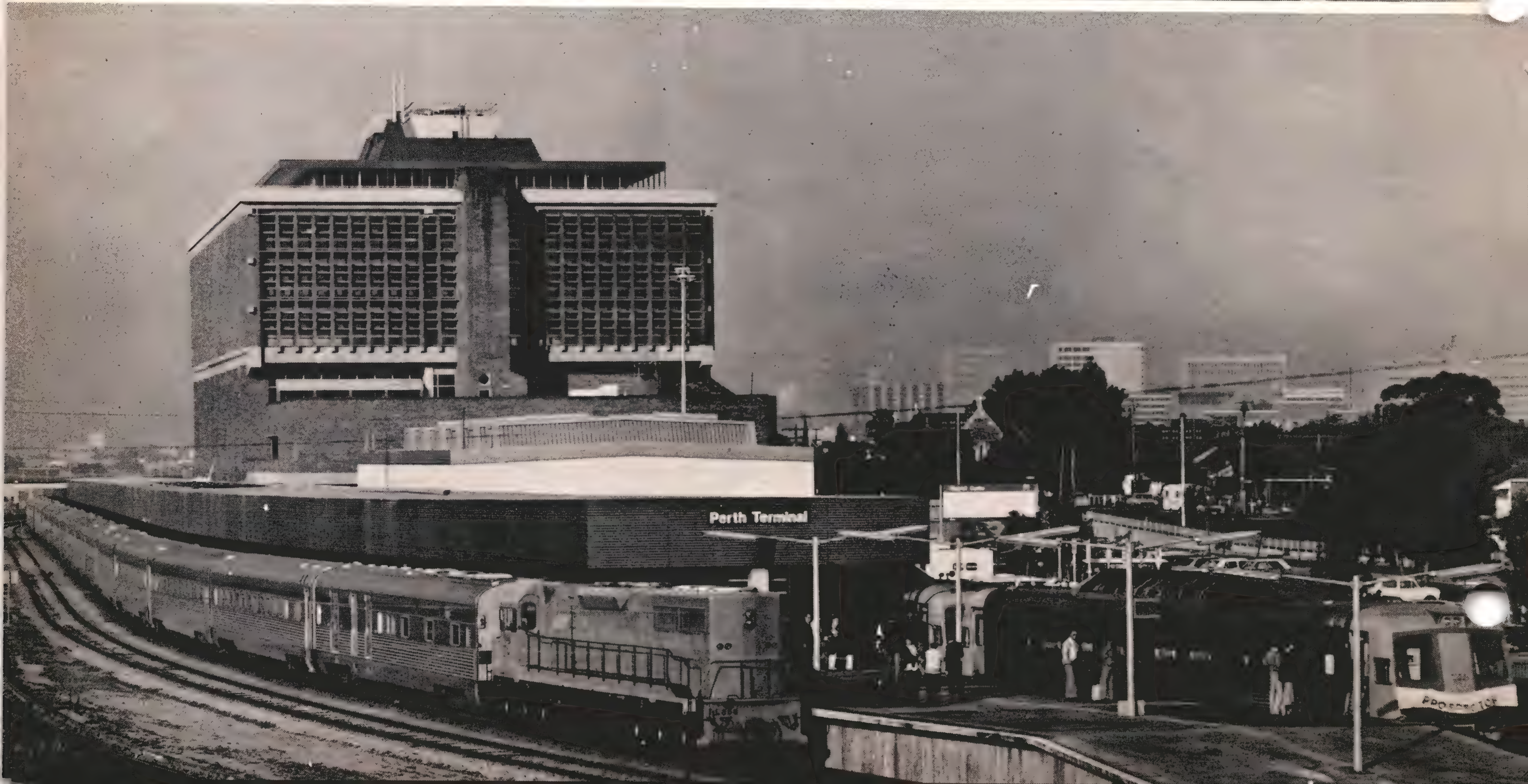
Above: General freight train, bound for Geraldton.

Top Left; Westrail motorcoach, recently introduced on mainline services, ready to leave Albany railway station.

Centre: Tracklaying between Allied Eneabba (sands mine in background) and Dongara, a 95 km line officially opened on 30 April 1976.

Below: "Indian Pacific" and "Prospector" at Westrail's new Perth Terminal and administration centre.





Railway Report.

From Australian Timken Proprietary Limited

(Advertisement)

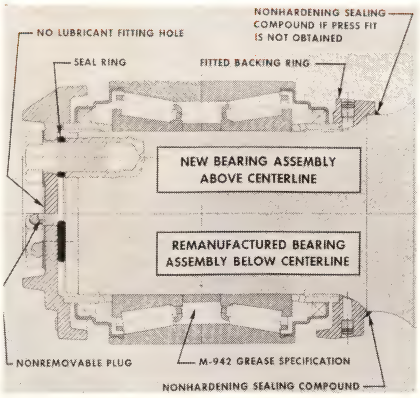
No. 3 June/July 1979

Energy saving NFL

One railway freight wagon equipped with plain bearings uses as much lubricant as 100 freight wagons equipped with No-Field-Lubrication tapered roller bearings.

To determine the difference in lubrication costs between the two types of bearings, Timken Company engineers combed through page after page of data from the American Association of Railroads and other sources.

They found out exactly how many bearings, both plain and roller, were in service across the fleet, how much oil and grease they use on average and how much those lubricants cost.


NO LUBRICANT FITTING HOLE
NONHARDENING SEALING COMPOUND IF PRESS FIT IS NOT OBTAINED
SEAL RING
FITTED BACKING RING
NEW BEARING ASSEMBLY ABOVE CENTERLINE
REMANUFACTURED BEARING ASSEMBLY BELOW CENTERLINE
NONREMOVABLE PLUG
M-942 GREASE SPECIFICATION
NONHARDENING SEALING COMPOUND

NFL bearing

AAR records showed that there were almost two million plain bearing equipped cars in service in North America in 1954, the year Timken 'AP' tapered roller bearings were introduced. At 1954's low oil prices, these plain bearings chalked up a lubricant bill of over $5.6 million.

Through the foresight of the railroad industry, by 1974 half of the fleet of 1.7 million cars rolled on roller bearings for a total lubricant bill (at more than triple 1954 prices) of $8.5 million.

An astonishing $7.98 million — 94% of the total — went to lubricate plain bearings, while only $520,000 or 6% went for roller bearings.

Timken engineers took the figures a step further and concluded that if only 1% of the current fleet were equipped with plain bearings, those few bearings would still use more oil than if the fleet were 100% NFL (No Field Lubrication) roller bearing equipped.

A direct result of the Timken 'XP' bearing, the 'No-Field-Lubrication' concept eliminates excessive use of lubricants due to over-lubrication and results in considerable labour savings to the operator since bearings will not be lubricated in the field.

Extended service periods without relubrication have been proven by field experience; one American mining company reaching a goal of sixteen years operation without relubrication.

TGV turns on Timken bearings

One of the world's fastest trains is equipped with Timken tapered roller bearings.

France's TGV.001 turbotrain, which has a top speed of 300 km/h, is fitted with Timken bearings in the transmission and Timken 'AP' bearings on the axle journals.

The Timken Company, which first applied tapered roller bearings to railway rolling stock in 1923, introduced the Timken 'AP' (All Purpose) bearing in 1954. The Timken 'AP' bearing has been under continuous development since that date.

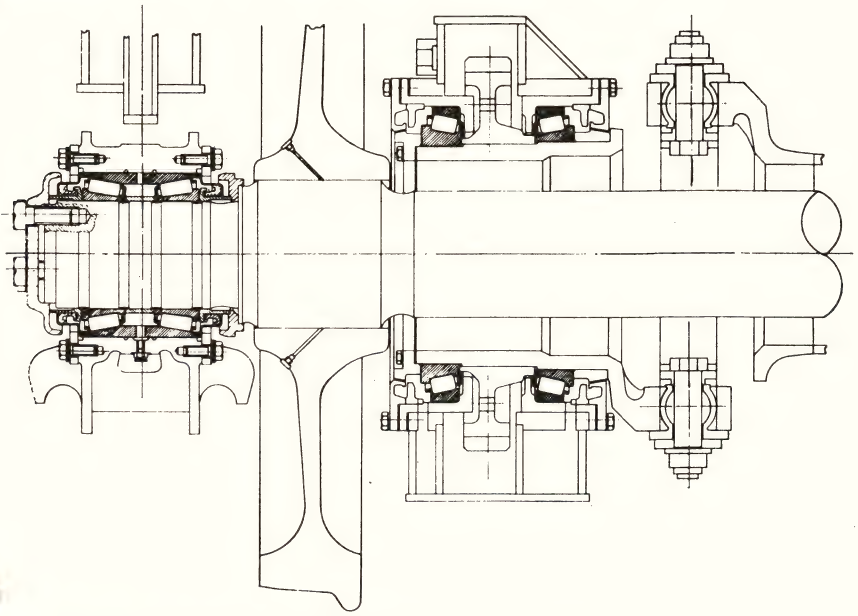
Developed specifically for railway rolling stock applications, nearly six million Timken 'AP' bearings have been supplied to railways in 95 countries of the world — an achievement which helped The Timken Company become the first bearing manufacturer to receive the AAR Certificate of Unconditional Approval.

Timken 'AP' bearings are self-contained, pre-assembled, pre-set, pre-lubricated, sealed units which can be applied to and removed from axle journals without exposing the bearing elements, seals or lubricants to contamination or damage.

Timken 'AP' and 'SP' bearings, which are manufactured to suit axle journals according to AAR, UIC and British Rail metric standards, incorporate all the recognised advantages of tapered roller bearings. These include an ability to take both radial and thrust loads or any combination of both and positive roller alignment for full capacity, which means sliding or skewing.

In addition Timken bearings are case-hardened to give a hard-wear resistant rolling surface and have a tough, crack resistant core to withstand shock loads.

Characteristics that made Timken tapered roller bearings the first choice of the French National Railways (SNCF) for the TGV train.



The TGV Turbotrain is fitted with Timken bearings in the transmission arrangement and Timken 'AP' bearings on the journals.

Rolling contact fatigue

The results of fatigue damage in rolling element bearings can prove expensive in time and money if not detected at an early stage.

The Timken Company has conducted extensive tests and research aimed at enabling the fleet owner or driver to detect the onset of rolling contact fatigue in tapered roller bearings as soon as possible.

Rolling contact fatigue damage is usually detected by visual evidence — sound, vibration, displacement of the centre of rotation, torque or temperature rise in a bearing application.

The rate of progression of fatigue damage from the earliest beginnings to the end of useful bearing life, under service conditions, depends upon environmental factors such as spectrum of applied load, recirculated debris from the progression of fatigue spalling or physical, chemical, and mechanical properties of the lubricant.

Fatigue in rolling contact is not a single phenomenon, it is the result of a competition among several different modes of fatigue failure.

There are five modes of fatigue damage in rolling contact fatigue, namely, inclusion origin, geometric stress concentration, point surface origin, peeling or general superficial spalling and subcase fatigue.

The **inclusion origin failure** is the most commonly experienced form of fatigue damage. In heavily loaded laboratory life tests or rig tests under nominally pure rolling contact, fatigue damage nucleates below the surface and spreads slowly enough that post-mortem examination often discloses fatigue cracking at inclusions associated with the main spall, or at random in the highly stressed volume of the steel nearby.

Geometric stress concentration

Every 'line contact' has an end, either at an undercut or roller end, which is a region of stress concentration. When the local stress concentration exceeds the effective stress concentration at inclusions in the steel or other discontinuities in the more uniformly loaded contact geometry, fatigue failure will begin at the end of the loaded raceway.

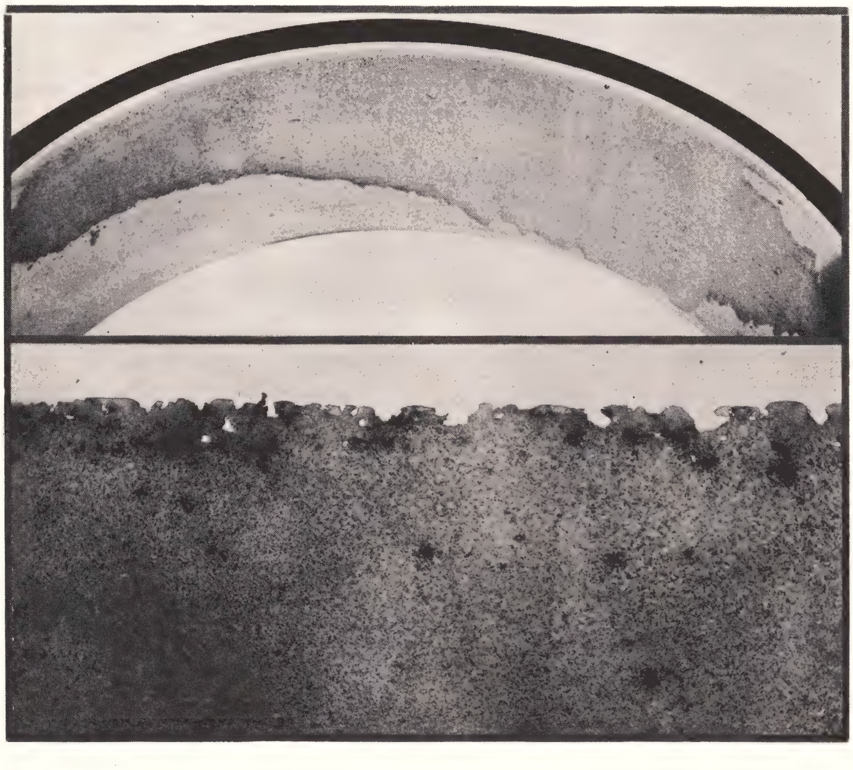
Often an end-of-contact failure will propagate more rapidly laterally but its origin is still clearly at the end of the contact length. This mode of fatigue damage is more frequently encountered in life tests accelerated by overload, since bearing geometry is designed to produce uniform contact stress under expected service loads.

Point surface origin

In this damage mode, damage occurs at random over the raceway, as does the inclusion type, but it differs from the inclusion type in two important respects.

First, there is no consistent association of nonmetallic inclusions with the origin of this type of failure and second, the point at which the fatigue crack initiates is at the surface under rolling contact, whereas the inclusion associated fatigue damage normally cracks first below the surface.

These characteristics cause a distinct 'arrowhead' appearance to the spall produced, which represent early and advanced stages of this type of fatigue spalling.



Peeling

Under some circumstances a large number of fatigue failures of this type may be found in various stages of propagation, but each origin has the characteristic arrowhead shape of the point surface initiated fatigue spall.

Peeling or general superficial spalling is characterized by the very shallow but uniform depth of propagation, rarely exceeding 0.001 in. and more often 0.0002-0.0005 in. in depth. Regions of peeling have a frosted appearance as they grow in area without significant increase in depth.

Sometimes peeling will spread to cover the entire raceway without seriously impairing the usefulness of the bearing. In other cases the edge of a peeled area will furnish sufficient geometric stress concentration that subsequent damage by that mode will occur and end the useful life of the bearing.

Subcase fatigue originates in the core material or very lowest carbon portions of the case.

A crack begins in the region beneath the case and may spread extensively before it is detected. Most often a radial crack connects the subcase fatigue crack with the surface, and the rate of propagation is greatly accelerated by the access of oxygen and lubricant to the deep crack.

The subcase fatigue type of damage is so rarely encountered in bearing tests that no illustration of this type of failure could be found in which it was conclusively the primary mode of failure.

Understanding and identifying these competitive modes of fatigue damage allows the causes of the damage to be identified. For example, inclusion origin fatigue damage could indicate that the bearing has either been overloaded or has just reached the end of its normal design life.

Geometric stress concentration fatigue damage indicates misalignment or deflection problems as a possible cause of bearing damage.

Point surface origin damage usually follows damage of the rolling element surfaces by nicks or bruises from contaminants or handling damage.

Peeling can often be associated with lubrication deficiencies — usually too low a viscosity for the conditions of load and speed.

Subcase fatigue usually indicates gross overload but is difficult to find.

Diagnosis of the type of damage leads to identification of possible design, lubrication, setup, machining and loading problems, and elimination of the problem through properly directed remedial action, rather than a simple replacement of the bearing.

(Advertisement)

Kwinana-Koolyanobbing Rehabilitation Project Launched

The Premier of Western Australia, Sir Charles Court, K.C.M.G., O.B.E., officially launched the $76 million Kwinana-Koolyanobbing Standard-gauge Railway Rehabilitation Project at Avon Marshalling Yard, Northam, on May 18. The Northam-Merredin section will be the first to be upgraded.

The launching ceremony, which included the unveiling of a plaque and the actuating of a newly-introduced P 811 track renewal machine to be used on the project, was attended by more than 200 people. Most of these guests travelled to Avon Yards by special "Prospector" railcar service from Perth Terminal.

"The development and progress that has been made could not have occurred without railways", the Premier said. "The railway has been responsible for opening up vast tracts of land to agriculture, for assisting in development of towns, for providing passenger transport, moving large tonnages of minerals and for transporting the State's grain harvest to market and to the coast for export".

Sir Charles said it had been unfortunate that despite Western Australia's most strenuous efforts, the Commonwealth Government had not been prepared to approve financing of the heavier-duty rail when the Kwinana-Koolyanobbing track was originally built in the 1960s.

Tonnages hauled over this important link soon escalated at a rate far in excess of that previously anticipated, and it soon became apparent that the State Government's fears about inadequate track standards were well founded.

Special studies in 1975 revealed that progressive re-railing and re-sleepering was necessary, and planning for the rehabilitation project was initiated.

"Westrail's research throughout the world has shown that the use of 60 kg/m rail welded into 274-metre lengths and fixed to concrete sleepers with specially designed fasteners is the most lasting method of rehabilitation," Sir Charles said. "I say this because it needs to be known that we are using the very latest in technology and the most modern equipment".

"When completed, the track will provide smoother and faster travelling conditions for Westrail's freight and passenger services. It will be another major achievement for the railway system in Western Australian, and another big step in the State's continued development and progress."

"The rehabilitation of the line represents a considerable amount of employment and a big investment. It reflects a solid faith in this State's future — and the part that railways will play in it," Sir Charles added.

* * *

The first phase in the 500 km rehabilitation project started in November 1977 with the signing of a $17.5 million contract for the manufacture of 940,000 concrete sleepers, the largest single contract of its kind ever signed in Australia at the time.

The standard- and dual-gauge pre-stressed concrete sleepers are manufactured by John Holland Constructions Pty Ltd at their new factory at Meckering, and the dual-gauge concrete sleepers are believed to be the first used in the world. Visitors to the official launching who travelled by "Prospector" from Perth, stopped in the Avon Valley to inspect the first three kilometres of track laid with the new dual-gauge sleepers and heavy-weight rail.

The railway will be the heaviest-duty Government railway in Australia, using 60 kg/m rail rolled in 27.4 metre lengths by BHP Ltd at Whyalla, South Australia, the first rail of such length ever rolled in Australia.

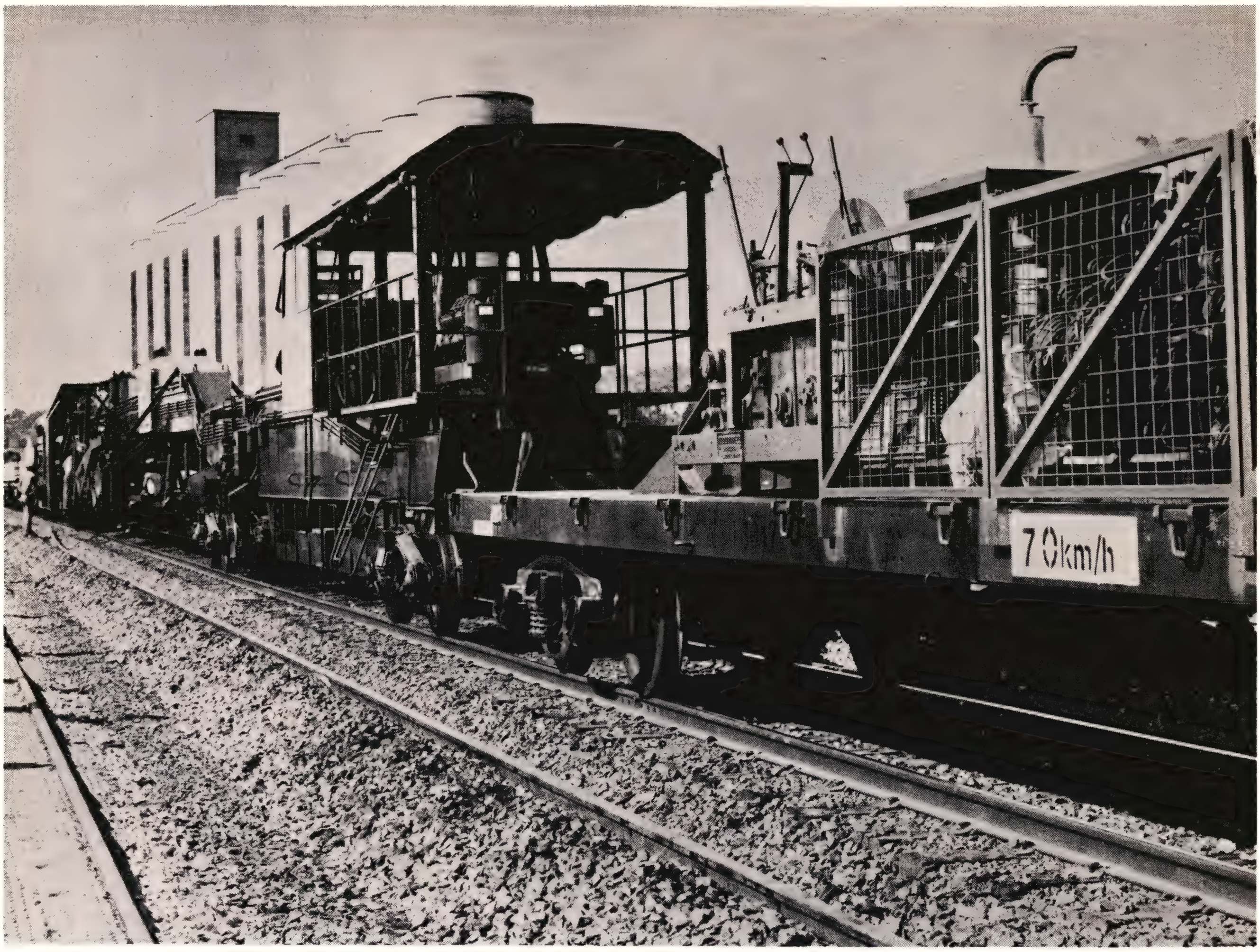
A new flashbutt welding depot has been built at Midland. There the rails are welded into 274 metre lengths and then transported to the works site on a rail distribution train, specially constructed at Westrail's Midland Workshops. The rails are finally thermit welded into continuous length, sometimes up to eight kilometres.

Two types of fastenings are being used on the project. Fist BTE fastening assemblies are being manufactured by Rail Track Fasteners Pty Ltd at their newly-established factory at Welshpool; this will be the first use of these particular fastenings in Australia.

Pandrol Australia is also providing rail clip assemblies made at the company's new premises at Maddington.

On-track equipment, designed by SRS of Sweden, is also being used in Australia for the first time for the replacement of the 160 turnouts be-

The Premier of Western Australia, Sir Charles Court, starts the giant P 811 track renewal machine.



The P 811 track renewal machine on display.

tween Kwinana and Koolyanobbing. The new turnouts, of modern design and assembled in Westrail's Midland Workshops, are being installed by Westrail teams ahead of the main tracklaying programme.

* * *

Roberts Constructions Pacific Pty Ltd, who were awarded the contract for renewal of the main track, are using the sophisticated P 811 machine imported from Italy. This machine, also the first of its type to operate in Australia, simultaneously removes old rails and sleepers, reshapes the ballast and places new sleepers and rails in position in a continuous operation.

The working section of the P 811 track renewal machine consists of an old sleeper reclaimer, a ballast scarifier and leveller, and a new sleeper layer with old and new rail threaders suspended below a beam.

Leading the "P 811" are the sleeper wagons comprising six wagons with side rails to carry a portal gantry. They can each be loaded with 144 sleepers in four banks of 36, each bank consisting of three layers of 12 sleepers.

The sleeper trolley is a self-propelled portal-type gantry running on rails and mounted on the side of the wagon. The gantry picks up 12 concrete sleepers at one time, or 22 timber sleepers. From the sleeper trolley two conveyors run to the working section of the track renewal train, one to take down the new sleepers and the other to bring back the old.

On arrival at the site, from the Midland flashbutt depot, the new rail is off-loaded on both sides of the track and the fastenings holding the old rail to the timber sleepers are removed.

The "P 811" is then manoeuvered into position, the line is broken, existing rail is spread and five sleepers are removed manually. The working section of the train is positioned and the old and new rails are thread into the appropriate rollers to enable the operation to start.

As the machine moves forward the old rails are lifted off the sleepers to each side of track and two wheels pick up the old sleepers, turn them over and deposit them on a conveyor to the collecting point on the sleeper trolley.

Ballast is scarified outwards and compacted by a vibrating plate. The new sleepers then slide down a second conveyor and are placed automatically on the bed at positive spacing. The new rails are continuously pulled from the side of track and correctly located on sleepers.

After the gantry has brought 12 new sleepers to the collection point to feed the downwards conveyor it takes the old recovered sleepers back to the empty wagon.

The concept of the "P 811" track renewal machine is an entirely new one; its simplicity, speed and precision are unequalled. It can be capably handled by five trained operators; and under normal operating conditions it can renew rail and sleepers at a rate of 600 metres an hour.

Westrail has re-arranged train schedules to provide five daylight hours each day clear of traffic to allow work with the rehabilitation project to proceed at maximum speed.

Westrail's Road Services

By virtue of their flexibility, Road Services have become an important arm of railway operations in Western Australia. They originated in 1941, with a single gas-producer bus operating between Perth and Kojonup, via Boddington and Williams, a distance of 256 km.

It was not until after World War II that a separate Road Services Section was formed within the Traffic Branch; and in 1947 the service began to change the character of much of Westrail's passenger transport. The whole of the lower south-west passenger-train service was replaced by a fleet of motor coaches operating from the major centres of Brunswick and Bunbury.

So successful was the decision to continue changing many passenger rail services to road that by 1949 the road service fleet had expanded to 38 coaches and five composite coach/freighters. During this particular year the fleet ran 3.2 million km with 480,000 passengers over 2,800 route km — including the longest one-day service in the Southern Hemisphere, 594 km between Perth and Hopetoun. Today the longest route is between Perth and Meekatharra, a distance of 782 km.

From the early 1950s there was considerable land development in the south-west and south-east from Albany to Esperance, and the motor-coach routes moved out to serve the new settlers.

By 1964 services had extended as far east as Esperance, and also linked the port with Kalgoorlie via Norseman. The same year saw the merging of the Midland Railway Co. with Westrail, bringing with it efficient road services, passenger and freight, operating between Perth and Geraldton.

With the exception of the "Australind" passenger train to Bunbury and the "Prospector" to Kalgoorlie, the road coach operations have progressively replaced uneconomic intrastate passenger rail services.

Today 50 passenger coaches and coach/freighters cover some 2.7 million km annually over 22 routes, carrying roundly 160,000 passengers and earning in excess of $1 million. Compared with the figures quoted earlier for 1949, when far less routes were covered by road coaches, the present lower annual patronage reflects the steady trend away from public transport despite the improvement in service standards. This is the influence of increasing private-car ownership.

* * *

The introduction of trucks to work in association with rail services started just after World War II when Westrail obtained a number of ex-Army three-ton vehicles for delivery and pick-up work between suburban rail depots.

By 1949 the railway won a newspaper delivery contract (now operated by Bays Transport), covering the south-west as far as Albany, the Narrogin area, and as far east as Merredin.

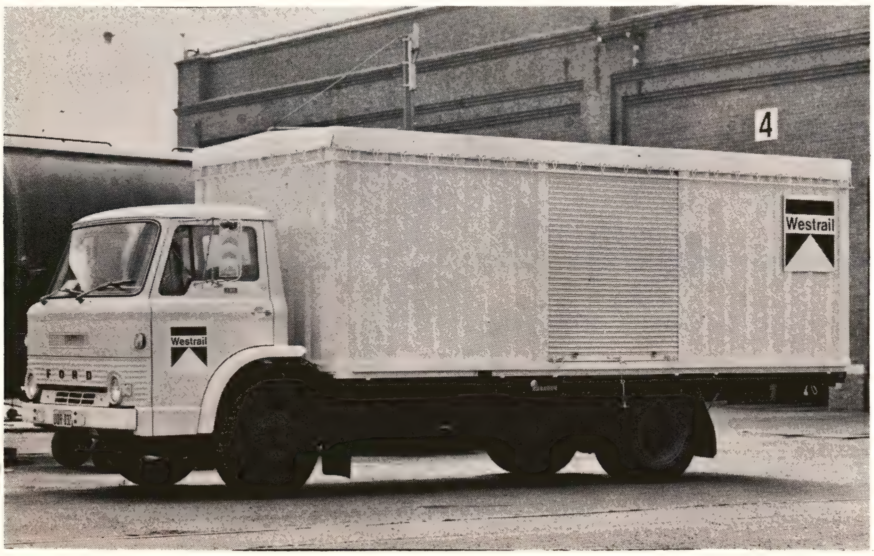
The road freight service became part of the Road Services Division in 1955, developing into today's fleet of 57 commercial trucks and 27 trailers.

Several branch railway lines have been closed over the years as a result of economic problems, but the people in these country areas have not been forgotten; alternative road-truck services have been introduced.

Co-ordination of road operations with rail services over the years has led to more efficient handling of perishables and other goods as well as faster transits.

To ensure that the motor vehicles in use throughout the network are kept in top operating condition — there are 860 panel vans, sedan cars, commercial trucks and other licensed vehicles, including specialised units — Westrail has two main road-vehicle workshops at East Perth and Kewdale. At both depots, off-schedule repairs are carried out as well as preventive maintenance.

With a staff of 261, Road Services are an integral part of Westrail's overall operations.



Above: Mercedes coach at Albany.
Below: Road truck at Midland.

Track laying . . . re~railing . . .

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Unloading rails for the construction of the Port Augusta-Whyalla Railway. Photograph by courtesy Australian National Railways.

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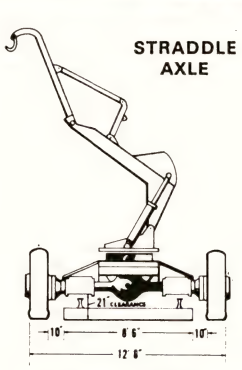

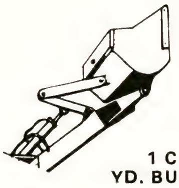

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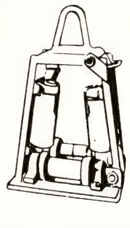
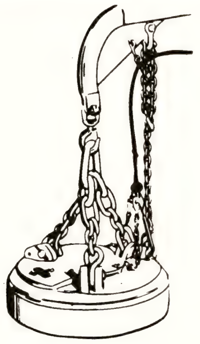


RAIL THREADER



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More Freight Centres in N.S.W.

The PTC's first Regional Freight Centre was opened at Tamworth on 14 November 1977 and since then, freight centres have been brought into use at Glen Innes and Armidale on 8 January 1979, and at Moree on 5 March 1979.

The opening of the new Gunnedah Rail Freight Centre on 30 April marked another important step in the streamlining of "less-than-wagon-load" traffic; and new centres are expected to open at Coonamble and Narribri on 23 July next, to be followed before the end of 1979 by others at Cowra, Cootamundra, Wyalong and Casino.

Planning is also well advanced for the development of terminals at a number of other country centres.

Since 30 April, all rail freight to and from Baradine, Boggabri, Breeza, Coonabarabran, Curlewis, Gwabegar and Kenebri has been handled through the new $430,000 Gunnedah Rail Freight Centre for conveyance by road to business houses in those towns.

Freight and parcels for private persons, or "out of town" clients, is left at the respective railway stations or depots for personal collection.

The PTC's co-ordinated system of rail/road transport has resulted in greatly improved freight services for customers and a significant reduction in operating costs.

The PTC has also established a central freight accounting system, controlled by a major computer in Sydney, with subsidiary terminals at the various freight centres, which enables all accounting to be centralised.

In addition to giving customers a better accounting service, the PTC is able to achieve significant economies in administrative overheads.

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VicRail Responds to Transport User Needs

At a recent meeting of the Victorian division of the Institute of Materials Handling, VicRail's Assistant General Manager, Mr Alf Nicholson, explained how VicRail is trying to meet the needs and wishes of transport users rather than trying to convince them to make more use of existing services.

Passenger services have been improved by the replacement of slow branch-line trains by air-conditioned road buses, under contract to VicRail, and freight traffic is now divided into three sections — Less than Car Loads (LCLs), Parcels, and Bulk Traffic (Wagon Loads).

Mr Nicholson described the LCLs as "a great success story. VicRail now provides an overnight delivery service to almost every town in Victoria".

To compete with increasing road freight services, VicRail had to provide a door-to-door service, with next-day delivery. This was not possible with the old goods train stopping at all stations. So VicRail established local distribution networks, based on regional freight centres and fast overnight trains.

"Thirty-five freight centres have been established and freight delivered to the Melbourne freight centre and to some suburban freight centres today will be delivered by our rail/road contractors throughout Victoria early tomorrow."

Goods could be delivered to VicRail terminals for many country areas up to 6.00 p.m. or VicRail would arrange for them to be picked up.

Goods were sorted, palletised, shrink-wrapped or caged to protect them where needed, and loaded into specially designed wagons.

These were placed on overnight trains, travelling to passenger timetables, so they were available for the rail/road contractor to deliver into the customer's store early next morning. When needed, VicRail would arrange warehousing.

Mr Nicholson added that "the freight centre service not only gives faster service but has resulted in a reduction in damage and loss of goods, and a 20 per cent increase in business."

Special training schools had been set up to teach employees proper procedures for palletising and stowing.

* * *

Parcels traffic used a fast dependable service with passenger trains, and also with contract buses. A major problem yet to be overcome was efficient handling at the receival locations of the thousands of individual parcels sent daily.

Regarding Wagon Load Traffic, Mr Nicholson pointed out that, unlike other states where mining provided a base traffic, Victoria's only bulk traffic was grain.

This year's record grain harvest of more than four million tonnes had given VicRail and the Grain Elevators Board the State's biggest-ever materials handling task. Complicating the operation was that each of the main grains — wheat, barley and oats — had several vital divisions. Barley, for example, had seven distinct grades. Storage capacity had become a serious problem for the Grain Elevators Board which, together with VicRail, had planned for a forecasted harvest of 3.5 million tonnes.

"So while we were geared to rail the grain at up to 2000 wagons each day, availability of storage capacity and the speed at which grain could be taken into store dictated the rate at which the grain could be moved," Mr Nicholson said.

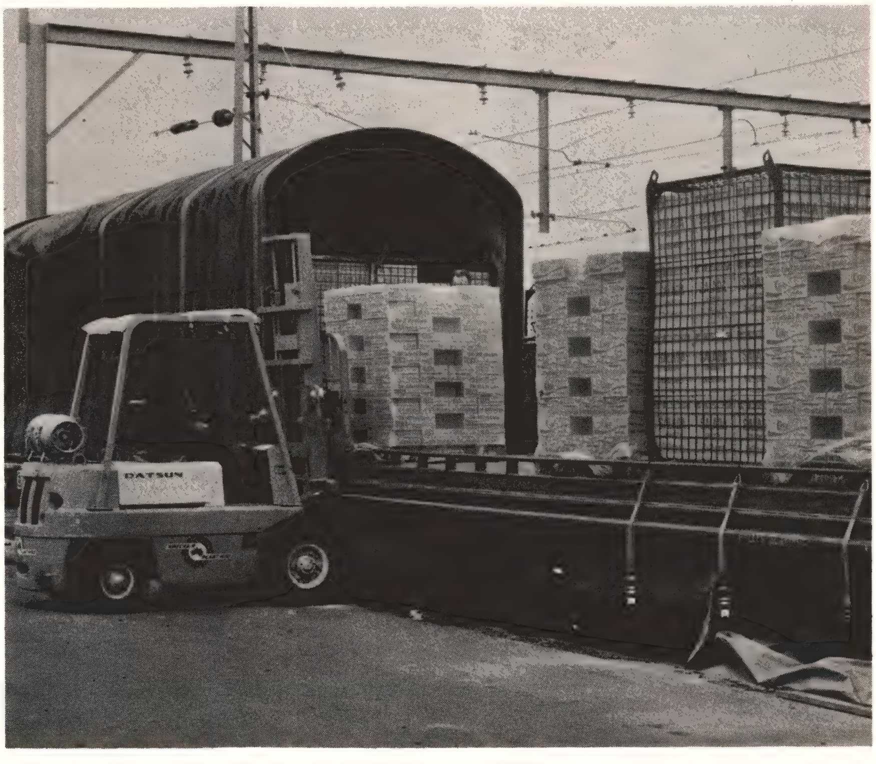
Probably the greatest lesson from this harvest was that instead of not having enough rail wagons, VicRail had too many.

It was not long before 70 per cent of the 5600 wagons placed at the start of the harvest were under load. More wagons were being loaded each day than could be unloaded. The conveyor belt had become jammed up with product.

Mr Nicholson explained that the storage problem was being mastered with ground storages built by the Grain Elevators Board. These had plastic-lined bund walls holding the grain which was then covered with plastic and earth. The grain was safe in them for five years.

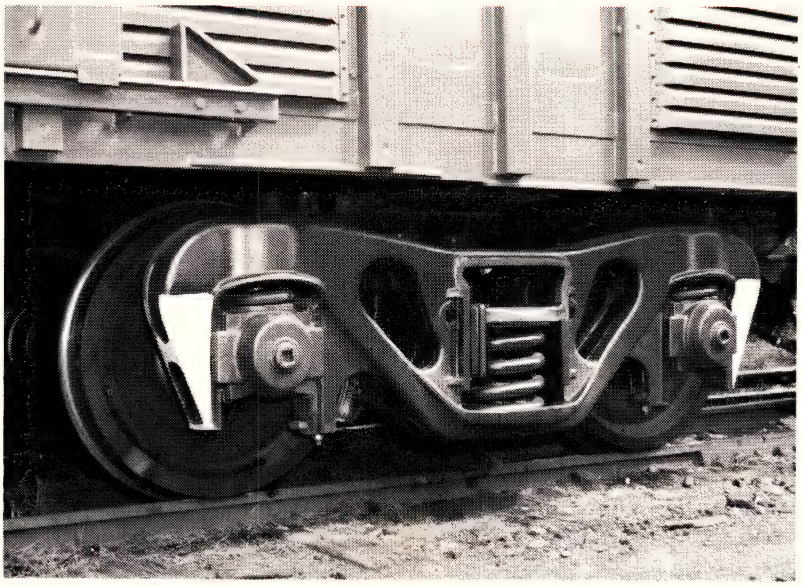
The Victorian Government had promised it would progressively remove the restrictive regulations from road transport, and VicRail believed it could provide very healthy competition given similar freedom to work as a commercial undertaking.

VicRail employees saw their industry as being the materials handling business . . . of providing transport and distribution services, not only railway services.



VicRail's new prototype "prairie wagon", of 50 tonnes nominal capacity, is used for fast overnight freight service. The flexible concertina-type canvas cover can be slid along the flat wagon to give open access for loading and unloading.

SPRINGS FOR RAILWAY ROLLING STOCK.



Fast freight bogie with Pioneer Springs and Wear Plates as supplied to the New South Wales Public Transport Commission.

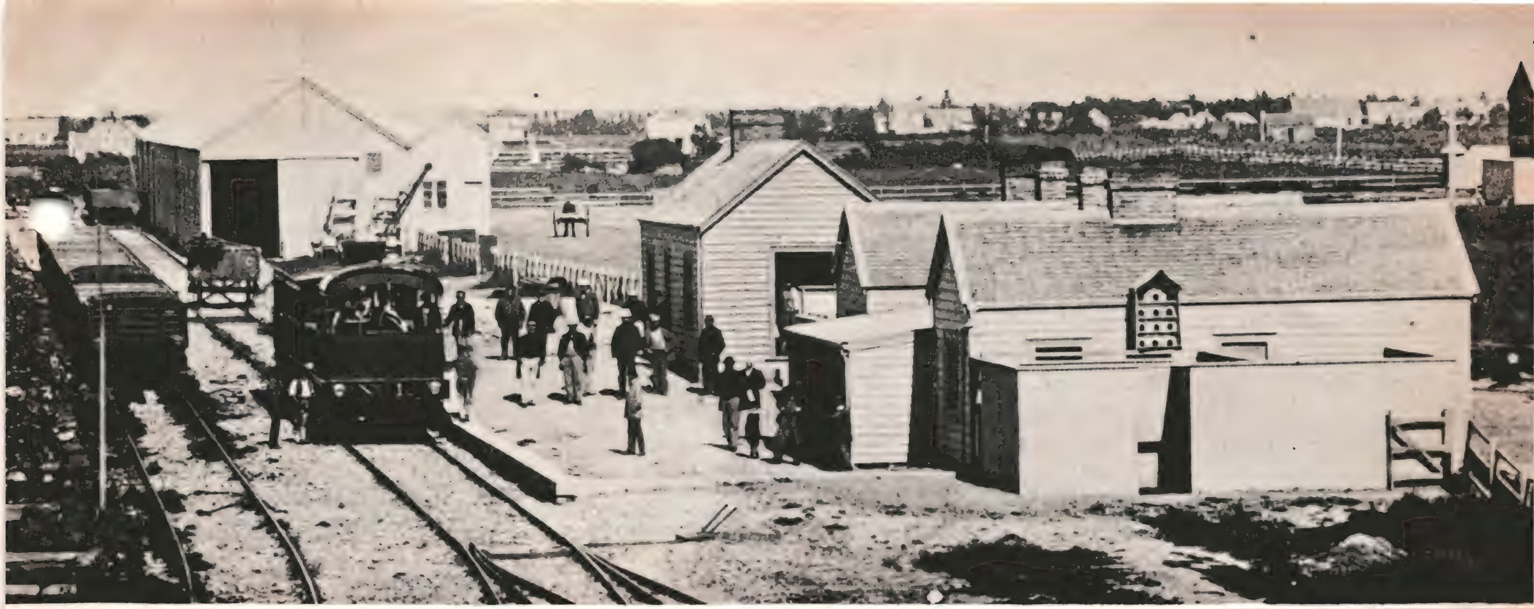
Pioneer supplies springs and wear plates for the fast freight bogies and locomotive suspension units that are used to transport goods and passengers over mainline tracks at speeds up to 125 km/hr. Pioneer's reputation for reliability has spread all over the world. Transport engineers everywhere rely on the consistent high quality of Pioneer springs for suspension units.

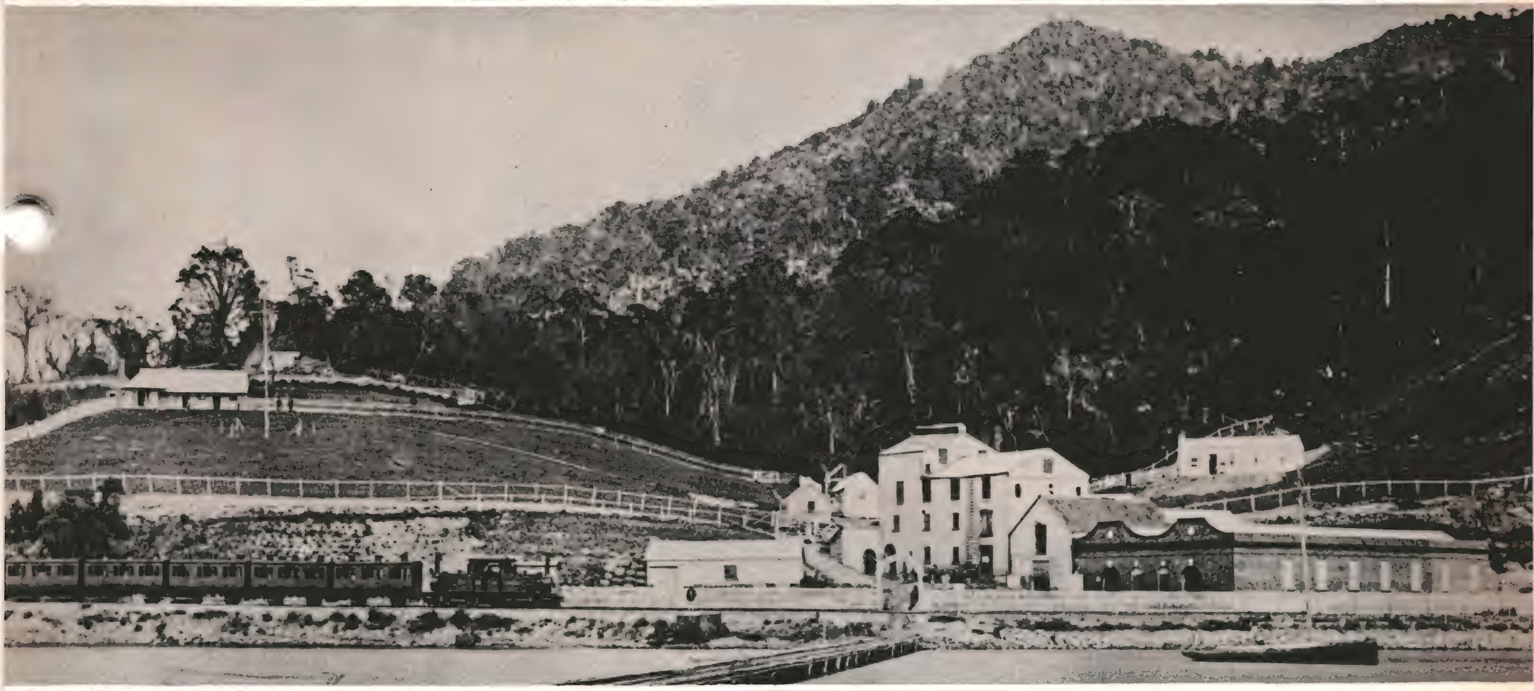
PIONEER SPRING COMPANY

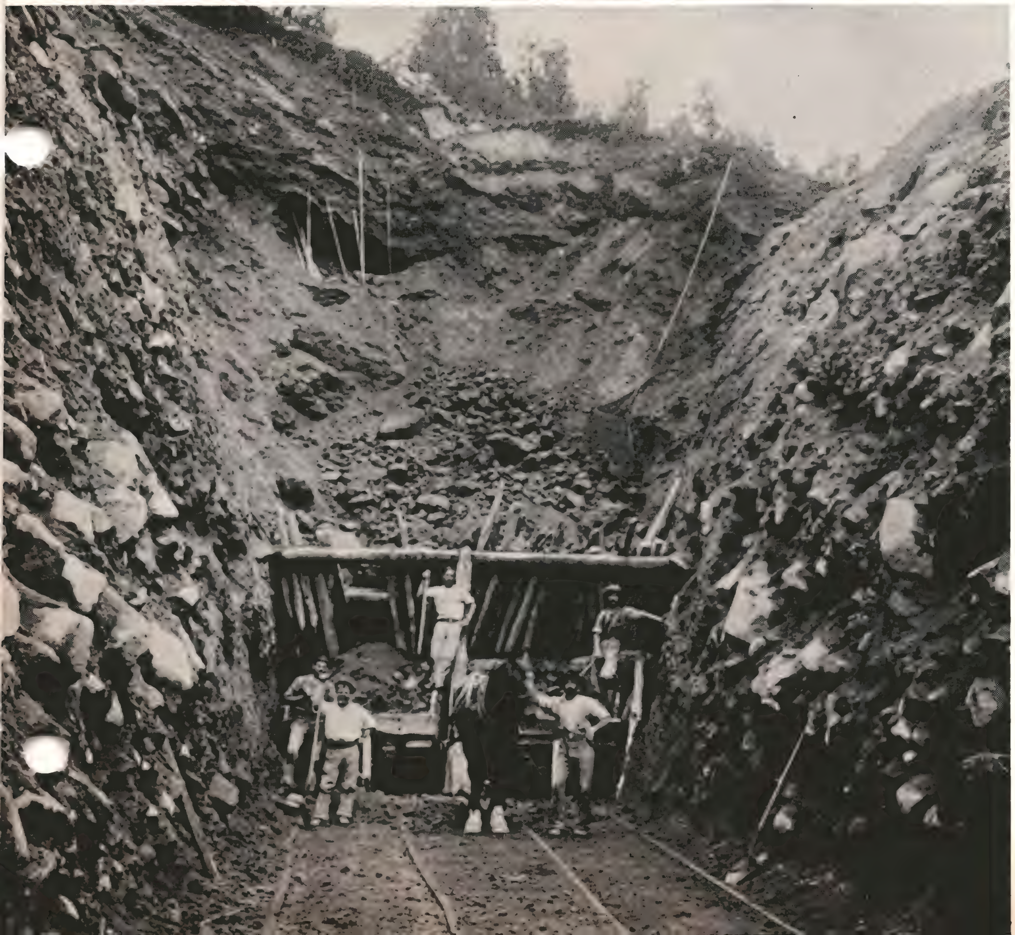
23 George Street, Homebush, N.S.W. 2140. Telephone 73-2266.

The Southern Aurora, Sydney-Melbourne Express, fitted with springs supplied by Pioneer.

PN023.FP.







The Canterbury Provincial Railway's station at Christchurch in 1864. Locomotive No. 1 is at the platform (top).

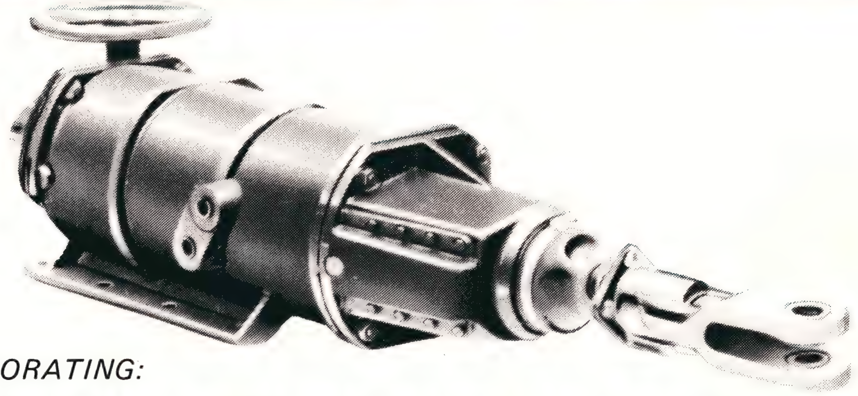
Train near Sawyers Bay on the Dunedin and Port Chalmers Railway c. 1873 (centre).

Excavating a deep boulder cutting on the Raurimu Spiral, during construction of the North Island main trunk railway.

Early NZR Photographs

WESTINGHOUSE

the TYPE 'HSL' BRAKE UNIT



INCORPORATING:

THE SPRING APPLIED PARKING BRAKE FEATURE

Another important advance in railway brake equipment design.

OPERATION:

During service operation the spring parking brake is held in the "brake release" position by the presence of air pressure in the spring brake chamber. Under this condition the service brake cylinder and slack adjuster are allowed to operate independently.

Venting air pressure from the spring brake chamber causes the spring parking brake to apply automatically.

FEATURES:

- Unique manual quick release. Approximately 5 revolutions of shaft provide full "brake release" condition of the spring parking brake actuator.
- Automatic Re-set. Following manual operation of the spring parking brake, restoration of air pressure fully releases the brake and re-sets the mechanism for automatic operation.
- Manual Application. The spring parking brake may be applied by manual rotation of the shaft provided, following manual release.
- Proven Service Brake. The service brake cylinder and slack adjuster portion of the "HSL" unit is based on the "JSL" type, of which many thousands are in service throughout the world, and in excess of 3 500 units in Australia.
- Leakage Protection. Seals are arranged between brake cylinder and spring brake chamber such that leakage from either is vented to atmosphere. Thus leakage cannot interfere with normal brake operation.

Railway Brake Division
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Interstate Offices:
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QUEENSLAND: Cnr. Ipswich & Boundary Roads, Rocklea, 4106. Tel. 77 2166
SOUTH AUSTRALIA: 207 Angas Street, Adelaide, 5000. Tel. 223 1177
WESTERN AUSTRALIA: Unit 3, Lot 66, Sheffield Rd., Welshpool, 6106. Tel. 451 4287
NEW ZEALAND: Westinghouse-McKenzie-Holland (N.Z.) Ltd., Rata St., Naenae. Tel. 67 7016

Tenders and Contracts

Tenders invited include:

PTC — Spec. 2556, closing 13 June. Twelve high-speed diesel engines, with hydraulic transmissions, suitable for diesel rail cars.

PTC — Spec. 1424, closing 13 June. Supply and erection of two 20 MVA transformers for Awaba and Cardiff substations.

PTC — Spec. 1426, closing 13 June. Supply of twenty-four 72.5 kV outdoor, oil circuit-breakers.

PTC — Spec. 1425, closing 11 July. Delivery and maintenance of nineteen 4.28 MV.A rectifier transformers.

PTC — Spec. 1427, closing 11 July. Delivery and maintenance of seven 36kV outdoor oil-circuit breakers.

PTC — Spec. 1428, closing 11 July. Delivery and maintenance of four MW semi-conductor rectifiers and nine wave filters.

WAGR — Contract 9690, closing date extended from 14 June to 28 June. Five diesel railcars and five trailer cars.

WAGR — Contract 9692, closing 13 September 1979. Six, or nine, or 13 diesel electric locomotives, narrow-gauge.

Recent Contracts include:

QR — Reconstruction of railway bridge over Yeates Creek, Proserpine to Bowen: Cesaco Pty Ltd ($316,262).

QR — Supply and delivery of two lines of non-metallic brake blocks: Hardie Ferodo Pty Ltd ($249,120); Macson Machine Tools Pty Ltd ($70,300).

QR — Supply and delivery of two years' requirements of lubricating oils (commencing 1 Jan 1979): Caltex Oil (Aust) Pty Ltd ($113,115); B.P. (Aust) Ltd ($99,150); Esso (Aust) Ltd ($42,546); Shell Co of Aust Ltd ($14,168).

QR — Erection of residences at Duchess (2), Rifle Creek (2) and Dajarra (1): C. & N. Tubman Constructions Pty Ltd ($225,493).

QR — Supply and delivery of 600 solid steel wheels (3 lines): Bradford Kendall Foundries Pty Ltd ($166,698).

QR — Supply and delivery of one pneumatice-tyred excavator: Ian M. Johnsten Pty Ltd ($155,466).

QR — Supply and delivery of rail anchors for Gregory project: Ralph McKay Ltd, Mackay Components Division ($94,300); Portec (Aust) Pty Ltd ($32,253).

QR — Construction of three residences at Carmila: Festival Homes Pty Ltd ($113,550).

VR — Unloading and transport of freight from Morwell South rail siding to Loy Yang Power Station construction site: Rosita Barbara Nominees Pty Ltd, trading as Gippsland Transport ($580,000).

VR — Supply and delivery of meat pies and pasties for period 2 April 1979 to 31 March 1980: Four 'n Twenty Pies, Division of Petersville Ltd ($155,092).

WAGR — 1000 wagon wheels: Bradford Kendall Foundries Pty Ltd ($334,130).

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Comment

Having just returned from a holiday in Australia, I wish to advise that my wife and self were impressed by the cleanliness, comfort and courtesy afforded on your express trains.

Having recently retired from NZR after 40 years service, I decided to make the journey across Australia in stages — Melbourne, Adelaide, Port Pirie, Perth, Sydney, with the intention that if the trains and services did not come up to expectation we could arrange alternative transport.

However, my wife and I thoroughly enjoyed relaxing travel and service — it was A1.

Next year we intend to travel by rail from Brisbane to Cairns, back to Sydney and then on to Melbourne, Adelaide and Alice Springs.

Would you kindly forward data on such a trip so that we could arrange an itinerary.

Percy F. Norton
Christchurch, N.Z.

Westrail's Centenary

JULY 26 1979

First train leaves Geraldton for Northampton.

100 years of service to the state

One hundred years ago, on July 26 1879, Governor Ord officially opened the first Government Railway in Western Australia. This 53km of line was constructed to carry mainly lead and copper from the mines at Northampton to the Port of Geraldton.

In that first year the railway carried 1 678 tonnes of goods and livestock and 1 037 passengers, earning the young colony $3 216.

From that humble beginning a network of lines and road service routes has been established to aid the development of industries and communities throughout the State.

Westrail now carries about 19 million tonnes of freight, 9 million passengers and earns about $160 million each year. It also spends $35 million on a variety of commodities and pays $100 million to its 10 000 employees.

Westrail is a nationally respected transport organisation founded on its service to the State and geared to continue into its next century of operations to further the progress of Western Australia.

Westrail 100 1879-1979

Western Australian Government Railways

Western Australia's 150th Year

Western Australia, the big friendly State, small in population, but rich in resources and opportunity, plans to make 1979 a year that will long be remembered.

To mark the founding of their State in 1829, the people of Western Australia have planned and launched a year-long birthday party — the biggest, liveliest and most colourful the West has ever known. One and a quarter million Western Australians spread over 2.5 million square kilometres will celebrate, in a thousand different ways, a century and a half of exciting growth and progress.

Western Australian Year 1979, or WAY '79 as it has been named, is quite rightly being billed as the "Year of Excitement". Visitors, always welcome in the West, will be doubly welcome this year — and early indications are that they will flock there in their thousands.

Tens of thousands will attend national and international conferences and conventions to be held in Perth. Others will be attracted by a vast range of entertainment, by cultural events, pageants, historical re-enactments and exhibitions, and by a host of top sporting events.

The official programme for the first six months of WAY '79 lists more than 1,000 events. So much is happening in the world of youth activities, recreation and sport, that a separate programme covering this aspect of the celebrations has been published.

The big birthday party is already under way. It was launched in spectacular fashion on New Year's Eve, when 60,000 people attended a free concert on Perth's roomy riverside esplanade. There was laughter, singing, music, fireworks, speeches and dancing in the streets as the West welcomed 1979.

Day one of Celebration Year was marked with the running in bright sunshine of the rich Perth Cup, fittingly and handsomely won by local champion, Meliador, from Australia's boom horse of 1978, Melbourne Cup winner Arwon. The pace hasn't slackened since and on each and every day until year's end there will be something festive happening somewhere.

Visitors in coming months, will be given the chance to witness such outstanding WAY '79 highlights as the 1979 Miss Universe Pageant, a Pacing Carnival at which the World Drivers Championship will be decided, and the mass finish at Fremantle of what promises to be the greatest ocean yacht race ever sailed, the Parmelia Race.

The first two of these celebration highlights are internationally famous annual events, being staged for the first time in Australia. The Miss Universe Pageant, the world's number one glamour event, attracts a television audience running into hundreds of millions.

Perth's impressive 8,000 seat Entertainment Centre will house the live audience for the exciting preliminary and final judging sessions. Bookings for these can be made now, either direct with the Miss Universe organisation in Perth or through any Western Australian Government Travel Centre. The Pageant lead up starts towards the end of June, with the selection of Miss Universe 1979 taking place on July 20.

Brilliantly lit Gloucester Park, scene of the world's first night trotting meeting, has been described by many visitors as the finest complex of its kind in the Southern Hemisphere. Here, in November the Australasian Pacing Championships will be staged, and the World Pacing Drivers' Championship, featuring top reinsmen, in conjunction with them. With some of the best beaches in the world available, country race meetings twice weekly, and racing each Saturday at Perth's Ascot Raceway, visiting trotting fans won't lack daytime entertainment.

Also timed for November 1979 is the spectacular mass finish of the Parmelia Race, an ocean yacht race between Plymouth and Perth, a distance of 20,000 kilometres. Due to start in August, the race has already drawn 40 entries from a dozen countries, by far the biggest fleet ever to compete in an inter-ocean race. Previous biggest entry was 16, in the 1977-78 Whitbread Round-the-World Race.

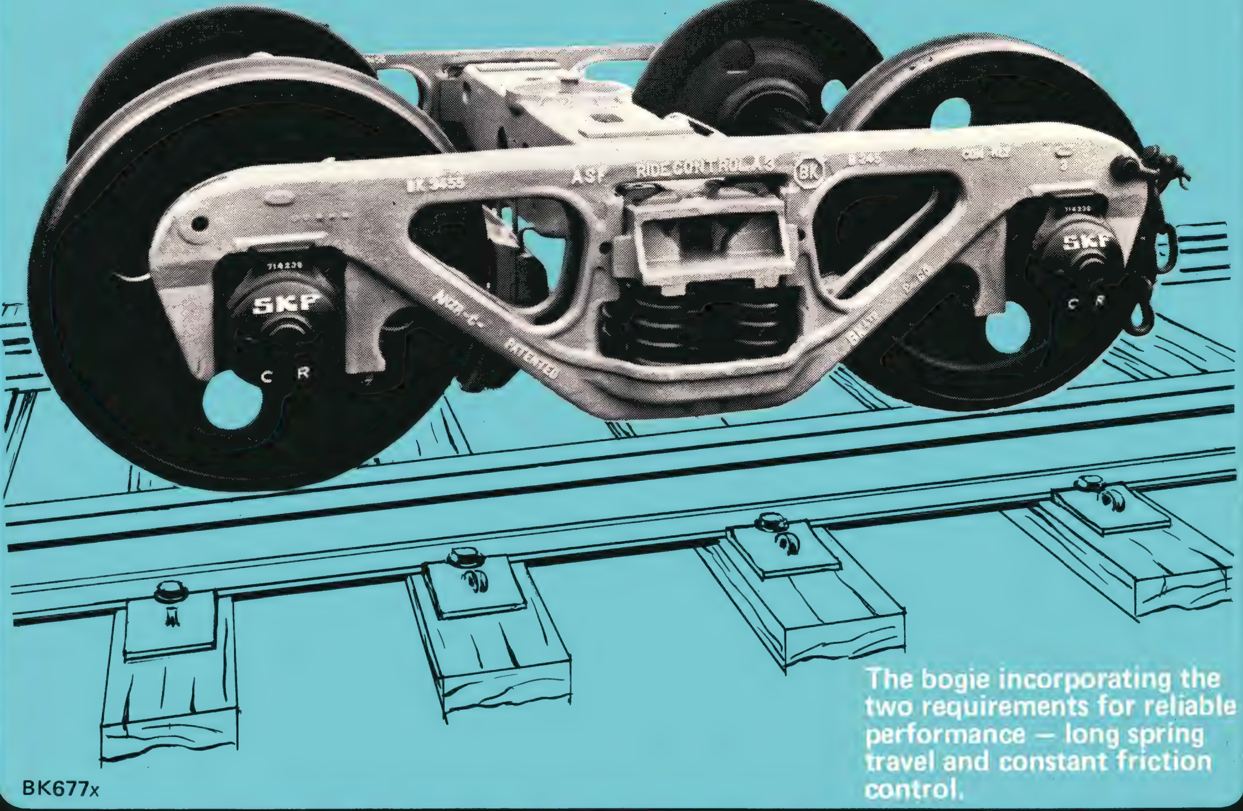
Yachts entered range in size from the 33 ft British entry "Mabena" to the massive 125 ft "Bill of Rights", to date the sole American entry. Famous deep-water sailors who will compete include Giles Chichester in Gipsy Moth V, Frenchmen Bernard Guy and Eric Tabarly, and Australia's super-sailor Rolly Tasker.

Tracing as it will, the path of the tiny barque "Parmelia" when it sailed from Plymouth with the first of Western Australia's pioneer settlers, down and through the Atlantic and across the Indian Ocean to

Perth's magnificent 8,000-seat Entertainment Centre, venue in July for the world's most glamorous beauty contest — the Miss Universe Pageant.

ASF **Ride Control**®

The Proven Economic and Efficient Railway Freight Car Bogie



The bogie incorporating the two requirements for reliable performance — long spring travel and constant friction control.

The ASF Ride Control Bogie pioneered the use of long travel springs with adequate reserve spring travel—the travel of the spring between the loaded car height and the solid height.

Proper and constant control of spring action is maintained through a built-in design known as the *ASF Ride Control* snubbing system.

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Perth, the Parmelia Race is a fitting commemoration of the very first page in the State's history.

In addition to the three major events described, a great variety of other events are listed in the calendar, that could have strong appeal as the cornerstone of a 1979 holiday in Western Australia.

Festivals in towns all over the State, including Coolgardie Day with its Camel Races, and Broome's Shinju Matsuri with its intriguing Pearl Auction, will attract thousands of extra intra-state and interstate visitors this year.

Other events are the National Eisteddfod which runs from August 16 to September 1 and includes 16 sections, the Indian Ocean Arts Festival in September and the Australian Jazz Convention at year's end. Western Australia Week, which started on May 27 with Thanksgiving Day, ended on June 4 with Foundation Day. In between, there was a Day of Friendship, a Day of Flowers, a Day of Pioneers, a Day of All Nations, a Day of Youth, a Day of Sport and a Day of Trees.

Sport will feature heavily in the year's celebrations. International and national championships and carnivals in yachting, Rugby Union and Rugby League, hockey, swimming, golf and motor racing are all set down for decision.

Two major golf tournaments likely to draw spectators from all over Australia, are the Ladies Commonwealth Tournament and the $150,000 Western Australian Open. Both are to be played at the Lake Karrinyup Country Club on the outskirts of Perth, and the Open is likely to see Australia's top performers, Marsh, Graham, Shearer, Norman and company pitted against the likes of Nicklaus, Trevino, Player and Ballasteros.

Rules fans will have their big WAY '79 moment when the first Australian carnival to be staged in seven years gets under way at Perth's Subiaco Oval in mid-October. Teams from every State, the ACT and Papua New Guinea will compete, and the nation's best Rules players will be battling for places in the first All Australian team to be selected since 1972.

Whatever your interests, Western Australia is the place for a holiday that offers something extra in 1979. The 150th Birthday Party will be a memorable occasion for residents and visitors alike.

The Window Seat

Mr Iver Trask, Deputy General Manager of the New Zealand Railways, has retired after 40 years service. He joined NZR as a cadet at Rangataua in 1939 and served in Patea, Eltham, Stratford and Hawera before being transferred to the Staff Division of the General Manager's Office in Wellington in 1960.

He became Staff Officer, Traffic, in 1966, Industrial Relations Officer in 1971, Senior Industrial Officer in 1972, and Assistant Chief Industrial Officer in 1974.

Mr Trask was appointed Assistant General Manager Personnel in 1975 and Deputy General Manager in 1978.

His position as Deputy General Manager will be taken by Mr Ian McGregor, who has been responsible for engineering and development. Mr Gordon Purdy will become Assistant General Manager in charge of staff.

* * *

Mr Allan Edward McInnes has been appointed New Zealand Railways' Commercial Manager. He joined Railways as a cadet at Waitati in 1943 and served at Seacliff, Roxburgh and Alexandra before being appointed Stationmaster at Maheno in 1956. A transfer to Kurow followed in 1959 and in 1962 he became Stationmaster at Makarewa.

In 1966 Mr McInnes transferred to the District Traffic Manager's Office at Dunedin and became Assistant Claims Agent for that district in 1970. He transferred to the Commercial Branch, Wellington, in 1971, was appointed Rates Officer in that branch in 1972, returned to Dunedin as Commercial Agent in 1974, and was back in Wellington as a Senior Commercial Agent in 1977.

* * *

A $6 million contract for prestressed concrete railway sleepers has been awarded by ANR to the Readymix Costain Joint Venture, who will manufacture 300,000 of them at plants in Kalgoorlie and Port Augusta. The plants produce 1,000 sleepers each day, providing employment for more than forty people.

The sleepers, additional to earlier contracts, are required for the faster construction and earlier completion of the new railway line between Tarcoola and Alice Springs, and for progressive upgrading of the 1700 km Trans-Continental line between Port Augusta and Kalgoorlie.

Their introduction will show long-term cost and operational benefits in both tracks, where temperatures range from below freezing point at night to above 40°C during the day.

The new contract will bring the total number of sleepers manufactured by the Joint Venture for ANR to more than one million. It will ensure completion of the Tarcoola/Alice Springs line by November 1980, some twelve months ahead of the original schedule. There will be substantial savings in maintenance expenditure with the earlier phasing out of the existing narrow-gauge Alice Springs line.

* * *

Ready to meet the passengers, VicRail's anti-litter campaigners are farewelled by the Assistant General Manager, Mr Rashleigh, and the Minister for Transport Mr Maclellan.

A "Don't Rubbish Your Trains" campaign was launched by the Victorian Minister for Transport, Mr Robert Maclellan, on 23 April at Flinders Street Station.

Eight attractive girls, dressed in blue tunics and gold skivvies, then began a fortnight's travel on suburban trains distributing litter bags and leaflets, the latter urging passengers to help to keep their trains clean.

But this was only the glamour part of the campaign. VicRail also employed 24 extra cleaners and provided yellow waste-bins at all suburban stations.

Brightly coloured posters urged people to use the bins, and linked their effort with the "Keep Australia Beautiful" campaign.

Displays at Flinders Street and Spencer Street stations showed a silver train when clean, and how it is spoiled by litter daily — a train is "only as clean as the untidiest passenger".

VicRail spends about $1.5 million a year in its efforts to keep trains clean. Each day cleaners remove about two tonnes of rubbish from them.

A giant four-axle silo wagon, 12 m long, 3 m wide and 3 m high, designed for coal haulage, is being exhibited at the Hamburg International Transport Fair. The maker, Alusuisse, has taken advantage of its long experience of large-section aluminium construction in the automobile sector and applied it to rail wagon construction.

The "Gondola" aluminium wagon weighs approx. 14 tons empty, and carries a useful load of 60 tons. Alusuisse claims that a comparable steel construction weighs 21 tons empty, with a useful load of 53 tons. A 20% saving in total assembly costs is also claimed.

High-Speed Trains attract passengers. *International Railway Journal* notes a 33% increase in patronage between London and Bristol, and London and South Wales, since Inter-City 125 train services began in October 1976. Ninety services a day link London with South Wales and Bristol, and more than 10 million passenger journeys have been made on trains operating the fastest diesel services in the world.

HST services from London to Newcastle and Edinburgh began in May 1978; services from London to Exeter, Plymouth and Penzance begin this year.

VicRail's weekday suburban off-peak return fares were reduced by approximately 33⅓% from April 2. The concession was increased from 25% to stimulate suburban rail travel between the morning and evening peak periods.

Off-peak tickets can be used on any train that arrives in Melbourne after 9.30 a.m. For journeys away from Melbourne, off-peak tickets can be used on trains leaving stations after 9.00 a.m., except evening peak trains that leave Melbourne between 4.00 p.m. and 6.00 p.m.

The fare zone includes all suburban electrified lines and VicRail's suburban bus services. Recent growth areas, serviced by VicRail non-electrified trains, covering Lara, Bacchus Marsh, Riddells Creek and Wandong in the west and north and Dalmore, Tyabb, Mornington and Healesville in the east and south are also included.

An extensive advertising campaign on radio and in the press stressed the advantages of train travel, including free car-parking facilities at stations.

A number of major metropolitan shopping centres — Camberwell, Box Hill, Greensborough, Footscray, Glen Waverley, Eastland and Prahran — are all located near stations; and VicRail's Sandringham-Beaumaris bus service extends to Southland shopping centre during business hours.

Race-goers are also looked after. All four major racetracks are close to stations and Pakenham, one of Victoria's leading mid-week race venues, is the last station on the Gippsland line covered by off-peak fares.

The following are samples of the off-peak reductions:

Essendon (8 km)
$0.90 Adult day return
$0.60 Adult off-peak
Glen Waverley (22 km)
$1.40 Adult day return
$0.95 Adult off-peak
Frankston (44 km)
$2.00 Adult day return
$1.35 Adult off-peak

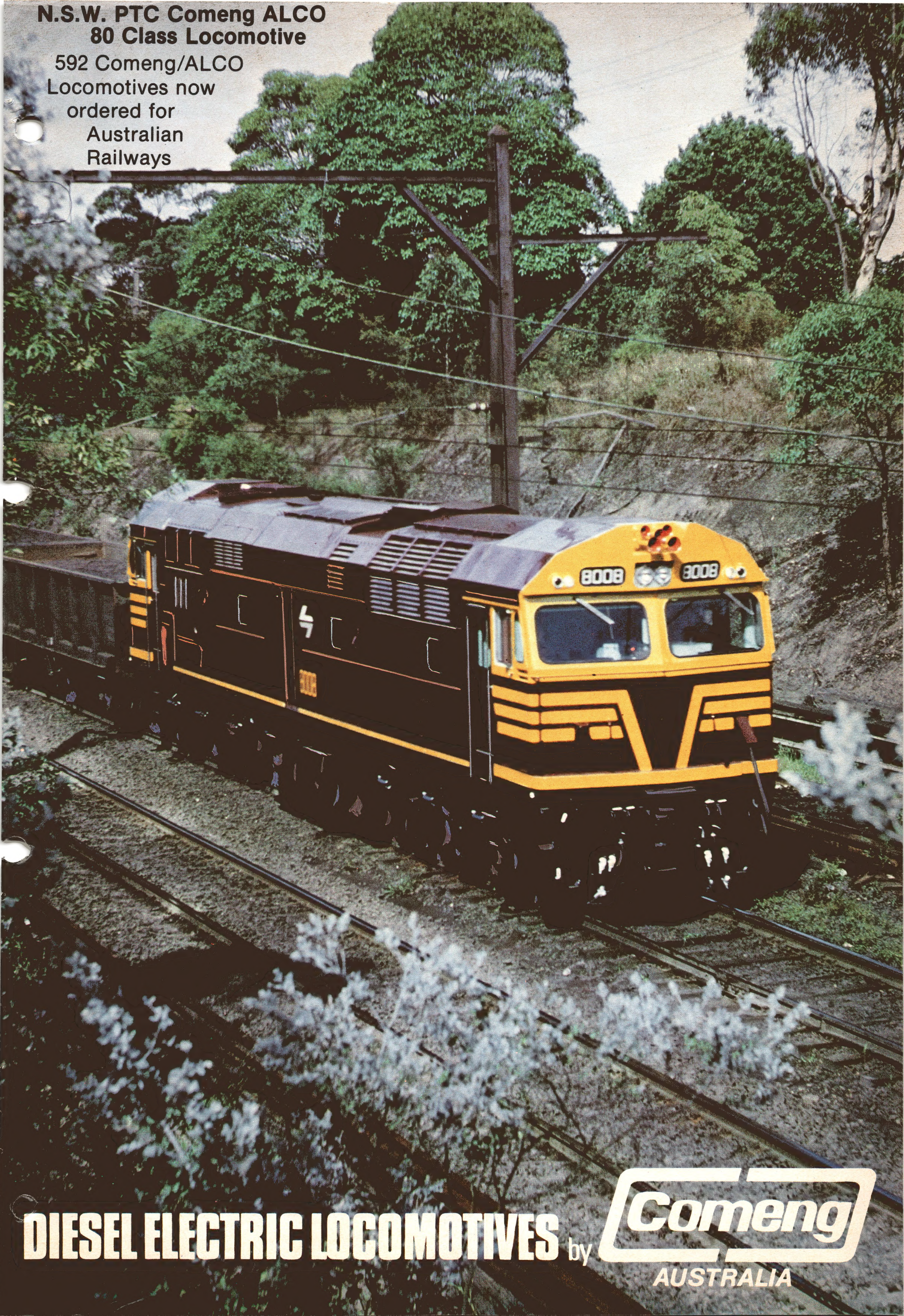
All fares have been rounded off to the nearest silver coin, which means that some fares fall by slightly less than 33⅓% while in other cases the discount is higher than 33⅓%

* * *

(continued on page 16)

N.S.W. PTC Comeng ALCO
80 Class Locomotive

592 Comeng/ALCO
Locomotives now
ordered for
Australian
Railways



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Whether you operate glamour, ordinary or heavy haulage trains, FIST-BTR will maximise your track performance

The FIST spring clip with the BTR baseplate on concrete sleepers is an outstanding combination for maximum track performance, whether you operate passenger, freight or particularly heavy haulage. There are just three simple robust components which positively interlock to prevent relative movement between the rail, sleeper or components themselves.

This means low initial cost and minimum track maintenance. The FIST-BTR rail fastener has good insulation properties, is easily assembled and has the proven performance of twenty million sets in various world railways.

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